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Southern Malheur Grazing Management Program

Environmental Impact Statement

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BUREAU OF LAND MANAGEMENT

Enclosed for your review and comment is the Southern Malheur Grazing Management Draft Environmental Impact Statement (EIS). The statement analyzes the impacts that would result from five alternative livestock management programs. The purpose of the statement is to present environmental, technical, economic and social information for use in the decisionmaking process.

Comments concerning the adequacy of this statement will be considered in preparing the final environmental impact statement. The comment period will end June 30, 1983. Informal meetings to answer questions on the draft EIS will be held at 7:30 p.m., June 7, 1983 in Jordan Valley, Oregon, at the Lions Den and at 7:30 p.m., June 9, 1983 in Vale, Oregon, in the Bureau of Land Management, Vale District conference room. Bureau of Land Management personnel will be available to answer questions regarding the draft EIS analysis.

The draft EIS may be incorporated into the final EIS by reference only. The final EIS then would consist of public comments and responses and any needed changes of the draft. Therefore, please retain this draft EIS for use with the final.

Comments received after the close of the comment period will be considered in the decision process, even though they may be too late to be specifically addressed in the final environmental impact statement. Your comments on the draft EIS should be sent to:

District Manager
P.O. Box 700
100 East Oregon Street
Vale, Oregon 97918

Sincerely yours,

Pearl M Parker

District Manager

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U.S. Department of the Interior
Bureau of Land Management

Draft

Environmental Impact Statement

Southern Malheur Grazing Management Program

Prepared by
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
1983

William D. Leavell

State Director, Oregon State Office

Draft

Environmental Impact
Statement

Southern Mariana Grazing
Management Program

Southern Malheur Proposed Grazing Management

Draft (x) Final ( ) Environmental Impact Statement Department of the Interior, Bureau of Land Management

- Type of Action: Administrative (x) Legislative ( )

- **Abstract:** The Bureau of Land Management proposes to implement livestock grazing management on approximately 4 million acres (53 allotments) of public land in eastern Oregon. Unallotted status would continue on approxiamtely 64,000 acres. Implementation of the proposed alternatives includes allocation of forage to livestock, wild horses, wildlife and nonconsumptive uses; establishment of grazing systems; and construction of range improvements.

Range condition would improve under all alternatives analyzed. Water quality would improve under Alternatives 4 and 5. Antelope populations are expected to increase under Alternatives 2 and 3. Long term increases in personal income, employment, and ranch valuation would occur under all alternatives.

- **Alternatives analyzed:**
- No Action
- Emphasize Livestock Grazing
- Preferred Alternative
- Emphasize Non-Livestock Values
- Emphasize Wild Horses

Draft statement made available to EPA and the public late April 1983. The comment period will be 60 days, ending June 30, 1983.

For further information contact:

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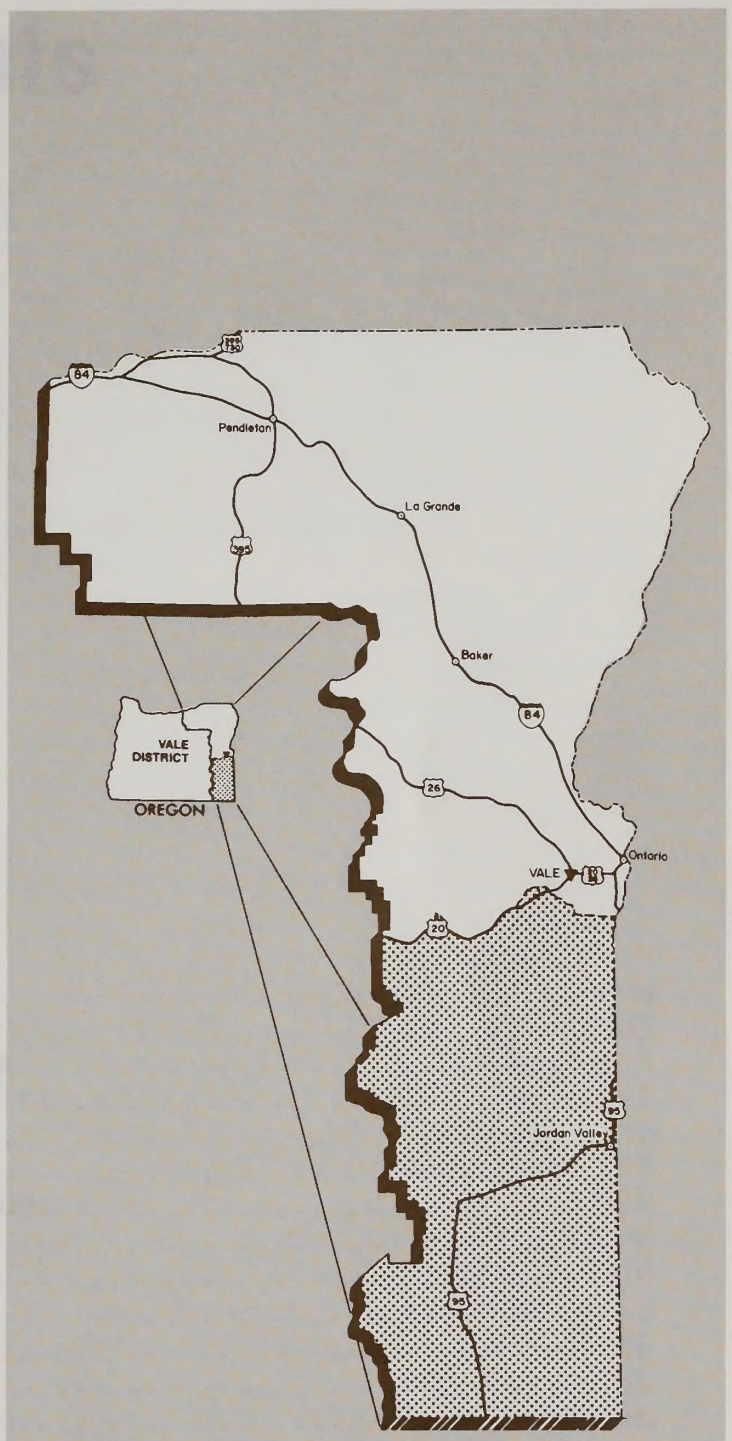

VICINITY MAP
SOUTHERN MALHEUR EIS

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Summary

Summary

This environmental impact statement (EIS) analyzes the impacts of implementing a livestock grazing management program in the Southern Malheur EIS area of the Vale District in eastern Oregon. Five alternatives developed through the Bureau planning system are described and analyzed. The purpose of the proposed alternatives is to present and evaluate options for managing, protecting and enhancing rangeland resources.

The five alternatives and a summary of environmental consequences are described below:

- **Alternative 1, No Action** - Alternative 1 continues the present situation. Grazing permits would continue to be issued at the 1981 active preference level of 320,346 AUMs. In addition, use by wildlife (5,296 AUMs) and wild horses (16,380 AUMs) would occur. Grazing management woul be the same as at present. No additional range improvements would be constructed.

- **Alternative 2, Emphasize Livestock Grazing** - Alternative 2 would provide maximum forage allocations to livestock by allowing utilization levels of 60 percent on native range and 65 percent on seeded range. Under these utilization levels 453,827 AUMs are available for initial allocation to livestock (437,731 AUMs), wildlife (5,296 AUMs) and wild horses (10,800 AUMs). 2,394 AUMs, located primarily in existing exclosures would be allocated to nonconsumptive uses. Livestock grazing would be allowed throughout the area except where currently excluded (8,400 acres). Proposed range improvements include seedings (116,779 acres), brush controls (253,049 acres), fences (238 miles) and water developments (296 developments).

- **Alternative 3, Preferred Alternative** - Grazing systems under Alternative 3 are designed to maintain or improve range and forage conditions to benefit wildlife, wild horses and livestock. Maximum utilization levels of 50 percent on native range and 60 percent on seede range would be allowed. Under these utilization levels, 423,402 AUMs are available for initial allocation to livestock (404,463 AUMs), wildlife (5,296 AUMs) and wild horses (13,200 AUMs). 30,463 AUMs would be allocated to nonconsumptive uses. Livestock and wild horses would be excluded from 478 acres in addition to the 8,400 acres of existing exclusion. Proposed range improvements include seedings (34,695 acres), brush controls (79,581 acres), fences (123 miles) and water developments (226 developments).

• **Alternative 4, Emphasize Non-Livestock Grazing Values** - Alternative 4 would emphasize non-livestock values where conflicts with livestock grazing have been identified. Maximum allowable utilization would be 40 percent on native range and 50 percent on seeded range. Under these utilization levels, 358,155 AUMs are available for initial allocation to livestock (345,659 AUMs), wildlife (5,296 AUMS) and wild horses (7,200 AUMs). 104,094 AUMS would be allocated to nonconsumptive uses. This alternative would exclude livestock from 74,483 acres in addition to the 8,400 acres of existing exclusion. Proposed range improvements are limited to 188 miles of riparian area protective fences.

• **Alternative 5, Emphasize Wild Horses** - Alternative 5 would emphasize wild horses within the existing wild horse herd areas. This alternative would exclude livestock from thirteen wild horse herd areas (806,901 acres). Maximum allowable utilization would be 40 percent on native range and 50 percent on seeded range. Under these utilization levels, 341,658 AUMs would be available for initial allocation to livestock (292,369 AUMs), wildlife (5,296 AUMs) and wild horses (43,993 AUMs). 120,591 AUMs would be allocated to nonconsumptive uses. Twenty-eight water developments would be constructed in the wild horse herd areas. Grazing systems, allocations and range improvements would be the same as Alternative 4 outside the wild horse herd areas.

Environmental Consequences

Vegetation

Range and forage conditions would improve under all alternatives. Total residual ground cover would decrease significantly under all alternatives except Alternative 1. The proportion of residual ground cover composed of perennial vegetation would increase under all alternatives. Alternatives 4 and 5, and to a lesser extent Alternative 3, would result in significant increases in woody key species on streamside riparian areas with medium or high improvement potential. Alternatives 1 and 2 would result in decreases in woody species in these areas. The standard procedures and design elements would result in decreases in woody species in these areas. The standard procedures and design elements would prevent impacts to threatened, endangered and sensitive plants from construction of range improvements. The impacts from other aspects of the grazing management program on these plant species are unknown.

Soils

On uplands, decreases in residual ground cover would be offset to varying degrees by increases in the composition of perennial species, stabilizing or decreasing erosion on 86, 68, 84, 89 and 74 percent of the area under Alternatives 1 through 5 respectively.

Over the long term, approximately 80 percent of the miles of streambank would be stabilized under Alternatives 4 and 5; 60 percent under Alternative 3; and 50 percent under Alternatives 1 and 2.

Water

No change in water quantity would occur under any of the alternatives. Water quality (sediment yield, water temperatures, fecal coliforms) would improve under Alternatives 4 and 5, and to a lesser extent Alternative 3.

Wildlife

Small mammals, birds and fish that are dependent on riparian areas would increase under Alternatives 4 and 5, and to a lesser extent Alternative 3. Alternatives 1 and 2 would result in decreases in wildlife dependent on riparian areas.

Vegetation manipulation would reduce populations of small animals that are dependent on sagebrush. Reductions would occur on approximately 370,000 acres in Alternative 2 and 114,000 acres under Alternative 3.

No significant changes in deer populations are expected as a result of implementing any of the alternatives. Antelope would increase under Alternatives 2 and 3.

Significant improvement in stream fish habitat would occur under Alternatives 4 and 5 and, to a lesser extent, Alternative 3. Some deterioration of stream fish habitat would occur under Alternatives 1 and 2.

Wild Horses

Temporary disturbances to wild horses would occur during the period of construction of range improvements under Alternatives 2, 3, 4 and 5. Wild horses would be allocated sufficient forage to provide for a maximum total population of 1,365 head under Alternative 1; 900 head under Alternative 2; 1,100 head under Alternative 3; 600 head under Alternative 4; and 3,666 head under Alternative 5.

Recreation

Projected visitor use to 1990 would not be significantly impacted under any alternative. Localized visitor use reductions would be offset by localized increases in visitor use. Under all alternatives, area-wide 1990 projected visitor use for public lands in the EIS area would show an estimated 10 percent increase over existing levels.

Visual Resources

Certain portions of the EIS area may experience slight degradation of visual quality due to contrast created by range improvements. Project design features, as well as VRM program procedures and constraints, would mitigate land form and vegetative contrast under all alternatives.

Special Areas

Under Alternatives 4 and 5, and to a lesser extent Alternative 3, habitat for the Whitehorse cutthroat trout would be enhanced within the Whitehorse Basin ACEC. Grazing under all alternatives would not impact any other identified special area.

Cultural Resources

Appropriate measures would be taken to identify and protect cultural sites prior to ground-disturbing activities. Therefore, adverse impacts would be mitigated on known cultural sites.

Socioeconomics

Under Alternatives 1, 2, 3 and 4 personal income in Malheur County would increase over the short term. Alternative 5 would result in a short term decrease in personal income. Long term increases in personal income would occur under all alternatives. Employment would decrease under Alternative 5 during the short term. Long term increases in employment would occur under all alternatives. A short term net gain in ranch valuation would occur under Alternatives 2, 3 and 4. A short term net loss would occur under Alternative 5. Long term net gains in ranch valuation would occur under Alternatives 2, 3, 4 and 5. Nochanges in ranch valuation would occur under Alternative 1.

Purpose and Need

This environmental impact statement (EIS) analyzes the impacts of implementing a livestock grazing management program on public lands administered by the Bureau of Land Management (BLM) in the Vale District in eastern Oregon. This area is referred to as the Southern Malheur EIS area.

The BLM is responsible for managing livestock grazing on public lands in a manner that would maintain or improve public land resources, including soil, water, vegetation and wildlife habitat. The Bureau's principal authority and direction to manage lands are found in the Taylor Grazing Act of 1934, Federal Land Policy and Management Act of 1976 (FLPMA) and Public Rangelands Improvement Act of 1978.

The purpose of the proposed alternatives is to present and evaluate options for managing, protecting and enhancing rangeland resources. Five alternative livestock grazing programs are analyzed: No Action, Emphasize Livestock Grazing, the Preferred Alternative, Emphasize Non-Livestock Values and Emphasize Wild Horses. Each alternative consists of a livestock grazing program needed to maintain or improve rangeland conditions.

The alternatives and issues addressed in this EIS were defined through the Bureau's planning system and public scoping meetings in McDermitt, Nevada; Boise, Idaho; and Jordan Valley, Vale, and Portland, Oregon. See Appendix A for a summary and results of EIS scoping.

The District Manager will review the public comments on both draft and final EISs and prepare a Record of Decision within 5 months after release of the final EIS. The decision may be to select one of the EIS alternatives intact, or to blend features from several alternatives that fall within the range of actions analyzed in the EIS. Significant conflicts, alternatives, environmental preferences, economic and technical considerations will be addressed in the Record of Decision.

Chapter 1 Description of the Alternatives

The proposed alternatives prescribe grazing management for 53 allotments on approximately four million acres of public land in the Southern Malheur EIS area. Approximately 119,000 acres of State land and 292,000 acres of private land are located within the allotments (as shown in Figure 1-1).

Unallotted status (see glossary) would continue on approximately 64,000 acres of public lands under all alternatives. No range improvements, allocations or grazing systems are planned on unallotted lands.

The following alternatives are analyzed in this document:

- Alternative 1 No Action
- Alternative 2 Emphasize Livestock Grazing
- Alternative 3 Preferred Alternative
- Alternative 4 Emphasize Non-Livestock Values
- Alternative 5 Emphasize Wild Horses

The alternatives differ in three components: (1) the allocation of livestock forage (2) the types of grazing systems to be applied and (3) the kind and amount of range improvements to be constructed. Appendices B, C and D contain allotment-specific proposed allocations, grazing systems and range improvements respectively. Table 1-1 summarizes the components of the alternatives.

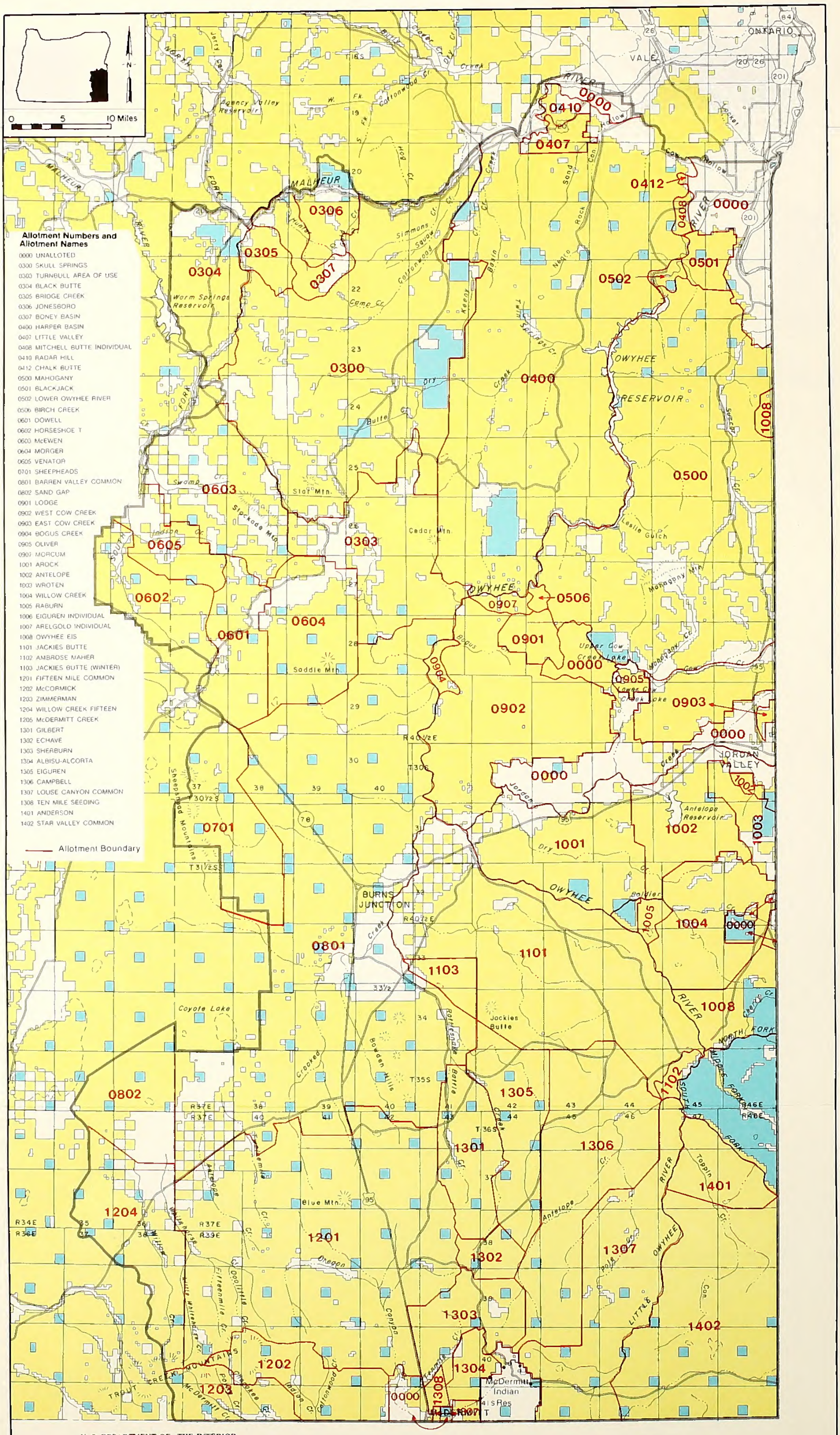
Alternative 1 - No Action

Alternative 1 continues the present situation. No change from present management conditions would occur. Grazing permits would continue to be issued at 1981 active preference levels, which are above grazing capacity on 14 allotments (922,049 acres) and below grazing capacity on 39 allotments (2,997,234 acres). As shown in Table 1-1, the forage allocation would continue at the 1981 level of 320,346 AUMs for livestock, 16,800 AUMs for wild horses and 5,296 AUMs for wildlife. Allocations by

Table 1-1 Summary of Components

	1981 Level	ALT. 1 No Action	ALT. 2 Emphasize Livestock	ALT. 3 Preferred Alternative	ALT. 4 Emphasize Non-Livestock	ALT. 5 Emphasize Wild Horses
Existing Forage Production (AUMs)[1]	462,249	462,249	462,249	462,249	462,249	462,249
Maximum Allowable Utilization (%)[2]	—	—	65/60	65/50	50/40	50/40
Initial Allocation (AUMs)						
Wildlife	5,296	5,296	5,296	5,296	5,296	5,296
Wild Horses	18,372	16,380	10,800	13,200	7,200	43,993
Nonconsumptive	—	120,227	2,050	32,733	104,094	120,591
Livestock	313,021	320,346[3]	444,103	411,020	345,659	292,369
Long Term Forage Production (AUMs)		462,249	546,620	532,475	501,295	501,295
Long Term Allocation (AUMs)						
Wildlife		5,296	5,296	5,296	5,296	5,296
Wild Horses		16,380	10,800	13,200	7,200	43,993
Nonconsumptive		120,227	3,050	32,733	104,094	120,591
Livestock		320,346[3]	527,474	481,246	384,705	331,415
Grazing Systems (acres)[4]						
Winter		561,003	378,058	368,218	370,754	152,482
Early Spring		214,082	315,489	284,002	266,067	159,834
Spring/Summer		456,503	400,825	392,765	441,204	407,835
Spring/Fall		56,693	92,597	92,597	85,216	82,981
Deferred		237,029	236,768	140,571	216,042	202,402
Deferred Rotation		1,782,677	2,090,055	2,173,222	2,021,225	1,571,751
Rest Rotation		544,077	338,272	400,211	377,073	393,395
Exclusion		8,400	8,400	8,878	82,883	889,784
Fenced Federal Range		50,345	50,345	50,345	50,345	50,345
Unallotted		63,629	63,629	63,629	63,629	63,629
Unavailable[5]		17,812	17,812	17,812	17,812	17,812
Range Improvements						
Fences (miles)	2,087	0	238	123	188	188
Springs (each)	295	0	72	66	0	1
Pipelines (miles	477	0	122	26	0	0
Wells (each)	36	0	15	4	0	0
Reservoirs (each)	690	0	203	148	0	27
Waterholes (each)	31	0	6	8	0	0
Brush control/seed (acres)	333,568	0	116,779	34,695	0	0
Brush control only (acres)	210,919	0	253,049	79,581	0	0
Construction Costs - ($000)	—	—	6,845	2,540	376	648
Total Benefits - ($000)	—	—	6,498	4,886	[7]	[7]
Total Benefit/Cost Ratio[6]	—	—	0.95	1.84	[7]	[7]
Internal Rate of Return		—	7.6%	14.7%	[7]	[7]

[1] Existing forage production is based on the maximum allowable utilization levels of Alternative 2. This is the total amount of forage which could be consumed by livestock on a sustainable basis.
[2] Percent utilization on seedings and native range (seedings/native). Utilization maximums are not applicable to Alternative 1.
[3] Livestock allocations for the No Action Alternative represent the 1981 active preference (320,346 AUMs). For the purpose of analysis, the long term allocation shown is the same as the initial allocation.
[4] Existing grazing systems are the same as Alternative 1, No Action.
[5] Areas within allotments which are not used by livestock due to a lack of water, livestock management fences, topography or low productivity.
[6] Benefits discounted at 7.875. A final benefit/cost analysis will be conducted prior to the decision and the results published in the Rangeland Program Summary.
[7] Benefit/Cost analyses were not conducted for Alternatives 4 and 5 because the level of investment is comparatively small and the monetary value of the benefits derived from the Alternative 4 and 5 investments cannot be reliably determined.



U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VALE DISTRICT

SOUTHERN MALHEUR ENVIRONMENTAL IMPACT STATEMENT

1983

FIGURE 1-1
LAND STATUS and ALLOTMENTS

allotment are listed in Appendix B, Table B-1. For purposes of analysis, no additional range improvement projects or intensive grazing management are assumed. Existing livestock exclusions would be maintained (8,400 acres). Table 1-1 summarizes acres under each existing grazing system. Grazing systems by pasture are listed in Appendix C, Table C-1. Wild horses occur in nine of the thirteen identified herd management areas. These herds would be managed as identified in existing Wild Horse Herd Management Plans and gathering plans.

Alternative 2 - Emphasize Livestock Grazing

The objective of Alternative 2 is to allocate a high level of forage to livestock while maintaining or improving range and forage conditions.

The maximum allowable utilization of key forage species under this alternative would be 60% on native range and 65% on seeded range. Allowable utilization levels would vary depending on condition, trend and proposed grazing systems, but average utilization would not exceed the maximum on any pasture. Utilization by pasture is shown in Appendix C, Table C-1.

Under these utilization levels 460,199 AUMs are available for initial allocation to livestock (444,103 AUMs), wildlife (5,296 AUMs) and wild horses (10,800 AUMs). 2,934 AUMs, located primarily in existing exclosures, would be allocated to nonconsumptive uses. The initial livestock allocation under this alternative represents a 42 percent increase over 1981 active use levels. For analysis purposes, it is assumed that the predicted long term increase in livestock forage production (83,371 AUMs) would be allocated to livestock while the long term allocation to wildlife, wild horses and nonconsumptive uses would remain unchanged. The initial and long term allocations under this alternative would provide sufficient forage to meet current Oregon Department of Fish and Wildlife big game objectives for mule deer and antelope, and would allow a total maxiumum wild horse population of approximately 900 horses in six herd areas.

Grazing systems are designed to maximize livestock benefits. Livestock grazing would be allowed throughout the EIS area, except where currently excluded (8,400 acres).

Proposed range improvements include seedings, brush controls, fences and water developments and are summarized in Table 1-1. The locations of proposed vegetation manipulations are shown on Figure 1-2. Proposed range improvements are listed by allotment in Appendix D, Table D-1. This alternative includes some range improvements that may not be cost beneficial and requires a total investment that is higher than the anticipated 10-year range improvement funding level.

Alternative 3-Preferred Alternative

The objective of Alternative 3 is to implement intensive grazing management to improve and maintain range and forage conditions to benefit wildlife, wild horses and livestock.

The maximum allowable utilization of key forage species under this alternative would be 50% on native range and 60% on seeded range. Allowable utilization levels would vary depending on condition, trend and proposed grazing systems, but average utilization would not exceed the maximum on any pasture. Utilization by pasture is shown in Appendix C, Table C-1.

Under these utilization levels 449,049 AUMs are available for initial allocation to livestock (411,020 AUMs), wildlife (5,296 AUMs) and wild horses (13,200 AUMs). 32,733 AUMs would be allocated to nonconsumptive uses. The initial livestock allocation under this alternative represents a 31 percent increase over 1981 active use levels. For analysis purposes, it is assumed that the predicted long term increase in livestock forage production (70,226 AUMs) would be allocated to livestock while the long term allocation to wildlife, wild horses and nonconsumptive uses would remain unchanged. These allocations would provide sufficient forage to meet current Oregon Department of Fish and Wildlife big game objectives for mule deer and antelope and would allow a total maximum wild horse population of approximately 1,100 horses in six herd management areas.

Grazing systems are designed to maintain or improve range and forage conditions and to improve 148 miles of streamside riparian habitat. No livestock grazing would be permitted within existing exclosures (8,400 acres) or on 478 acres of new exclusions surrounding streams and reservoirs that have potential for significant riparian habitat improvement. See Table 1-1, and Table 3-5.

Proposed range improvements include seedings, brush controls, fences and water developments. Only improvements which are cost beneficial would be implemented under the preferred alternative. The locations of proposed seedings and brush controls are shown on Figure 1-2. Appendix D, Table D-1, presents the number and type of range improvement by allotment.

Alternative 4 - Emphasize Non-Livestock Values

The objective of this alternative is to emphasize non-livestock values where conflicts with livestock grazing have been identified.

The maximum allowable utilization of key forage species would be 40% on native range and 50% on seeded range. Allowable utilization levels would vary depending on condition, trend and proposed grazing systems, but average utilization would not exceed the maximum on any pasture. Utilization by pasture is shown in Appendix C, Table C-1.

Under these utilization levels 358,155 AUMs are available for initial allocation to livestock (345,659 AUMs), wildlife (5,296 AUMs) and wild horses (7,200 AUMs). 104,094 AUMs would be allocated to nonconsumptive uses.

The initial livestock allocation under this alternative represents a 14 percent increase over 1981 active use levels. For analysis purposes, it is assumed that the predicted long term increase in livestock forage production (39,046 AUMs) would be allocated to livestock while the long term allocation to wildlife, wild horses and nonconsumptive uses remains unchanged. Initial and long term allocations for wildlife would meet current ODFW herd management objectives. The allocation to wild horses would be sufficient to maintain a maximum population of 600 horses in four herd areas.

No livestock grazing would be authorized in existing exclusions (8,400 acres). This alternative would exclude livestock from 74,483 additional acres to protect perennial and intermittent riparian areas which have significant potential for improvement (see Appendix G for a discussion of improvement potential ratings). See Appendix C, Table C-1, for proposed grazing systems by pasture.

Proposed range improvements are limited to 188 miles of riparian area protective fences.

Alternative 5 - Emphasize Wild Horses

The objective of this alternative is to emphasize wild horse values in all thirteen herd management areas. Outside herd management areas, the objectives and features of this alternative are the same as Alternative 4.

Maximum utilization levels under this alternative would be 40% on native range and 50% on seeded range. Allowable utilization levels would vary depending on condition, trend and proposed grazing systems, but average utilization would not exceed the maximum on any pasture. Utilization by pasture is shown in Appendix C, Table C-1.

Under these utilization levels 341,658 AUMs would be available for initial allocation to livestock (292,369 AUMs), wild horses (43,993 AUMs), and wildlife (5,296 AUMs). 120,591 AUMs would be allocated to nonconsumptive uses. Allocations in allotments outside of herd areas would be the same as Alternative 4.

The initial livestock allocation under this alternative respresents a 7 percent decrease from 1981 active use levels. For analysis purposes, the predicted long term increase in forage production outside the wild horse herd areas would be allocated to livestock, while the long term allocation to wildlife, wild horses and nonconsumptive uses would remain unchanged. The allocation to wild horses would be sufficient to maintain a maximum population of 3,666 horses in all 13 herd areas.

Livestock would be excluded from all 13 herd areas (806,901 acres). Grazing systems and riparian area exclusions outside the herd areas would be the same as Alternative 4.

Proposed range improvements include 28 water developments in wild horse herd areas and the riparian protection fences proposed under Alternative 4.

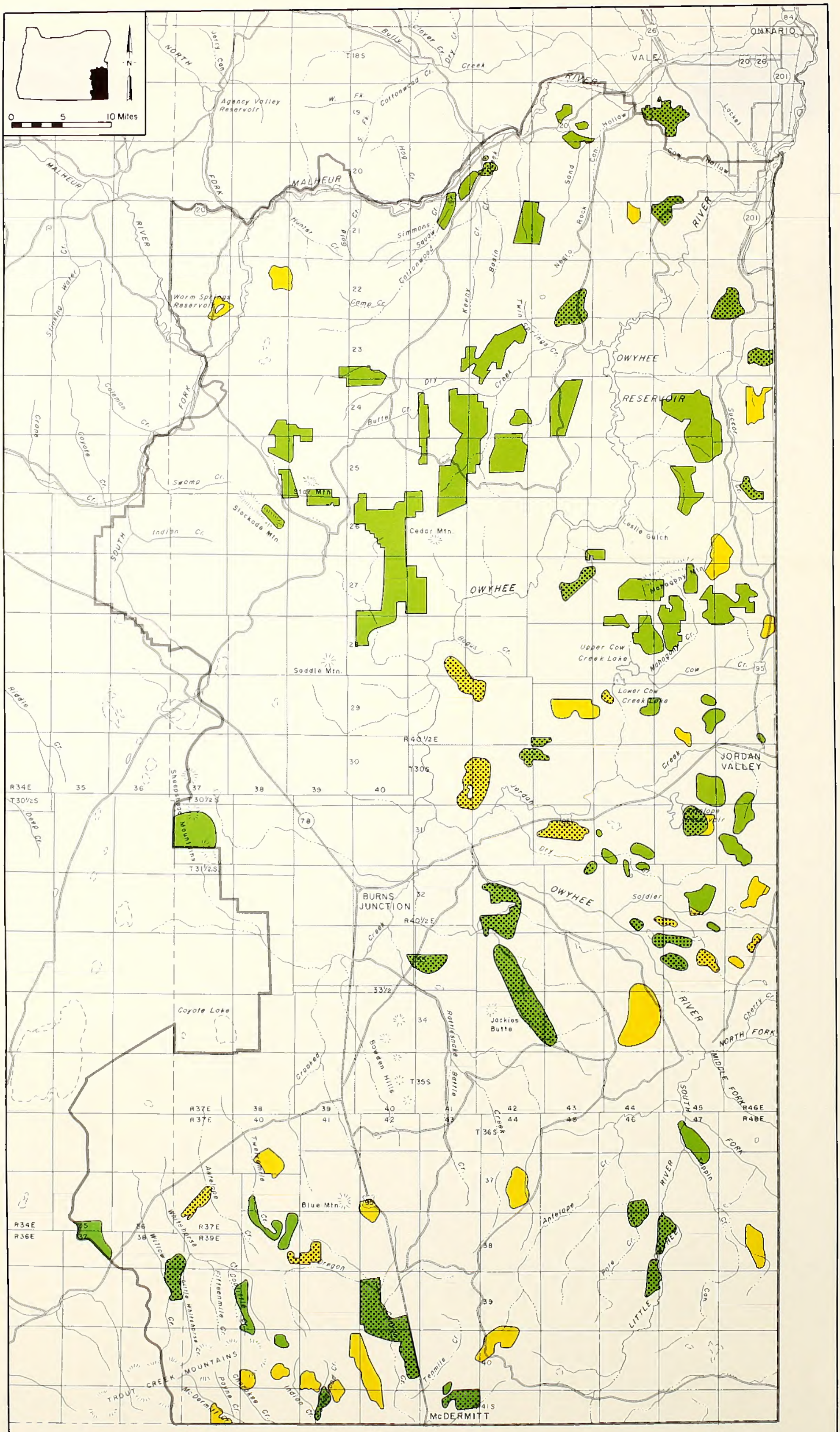
Comparison of Impacts

A summary of the comparison of long term impacts is displayed in Table 1-2. Detailed explanations of the impacts are given by resource in Chapter 3.

Components of the Alternatives

The proposed grazing management is composed of three interdependent elements: vegetation allocation, grazing systems and range improvements. These elements are described in detail in Appendix B (Vegetation Allocation), Appendix C (Grazing Systems), and Appendix D (Range Improvements).

The vegetation allocation proposed for each alternative would allocate the existing and future livestock forage production to various uses including wildlife, wild horses, livestock and nonconsumptive uses. By implementing grazing management and range improvements the existing level of forage production would increase under alternatives 2, 3, 4 and 5. Appendix B describes the methodology used to determine the proposed allocations. Appendix B, Table B-1, shows the initial and long-term vegetation allocation by alternative.



U. S. DEPARTMENT OF THE INTERIOR
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VALE DISTRICT

SOUTHERN MALHEUR ENVIRONMENTAL IMPACT STATEMENT

1983

FIGURE 1-2
PROPOSED VEGETATION MANIPULATION

LEGEND

BRUSH CONTROL/SEEDING
- Preferred Alternative
- Emphasize Livestock Alternative

BRUSH CONTROL ONLY
- Preferred Alternative
- Emphasize Livestock Alternative

Table 1-2 Summary Comparison of Long-Term Impacts of the Alternatives

Significant Resource	Existing Situation	Alt. 1 No Action	Alt. 2 Emphasize Livestock	Alt. 3 Preferred Alternative	Alt. 4 Emphasize Non-Livestock	Alt. 5 Emphasize Wild Horses
Water						
Runoff		NC	NC	+L	+L	+L
Fecal coliforms		NC	NC	+L	+H	+L
Sediment yield		NC	NC	+L	+M	+M
Vegetation						
Range Trend (3,992,250 Acres Total)						
Up	16%	42%	64%	78%	77%	58%
Static	75%	46%	33%	20%	21%	40%
Down	5%	12%	3%	2%	2%	2%
Unknown	4%	0%	0%	0%	0%	0%
Total residual ground cover	NC	NC	−H	−H	−M	−M
Forage production (AUMs)	462,249	NC	+15%	+12%	6%	+6%
Streamside Riparian						
Vegetation Trend (2,814 Acres Total)[1]						
Increasing		3%	3%	6%	15%	15%
Static		75%	74%	76%	75%	75%
Decreasing		16%	17%	12%	4%	4%
Unknown		6%	6%	6%	6%	6%
Wildlife Populations						
Deer		NC	NC	NC	NC	NC
Antelope		NC	+L	+L	NC	NC
Small mammals		NC	−L	−L	+L	+L
Water-associated birds		NC	NC	+L	+L	+L
Upland game birds		NC	−L	−L	+L	+L
Other birds		NC	−L	−L	+L	+L
Reptiles		NC	−L	−L	+L	+L
Amphibians		−L	−L	−L	+L	+L
Fish		−M	−M	−L	+H	+H
Soils						
Upland Erosion (3,992,250 Acres Total)						
Decreasing		40%	7%	17%	41%	37%
Static		46%	61%	67%	48%	37%
Increasing		14%	32%	16%	11%	26%
Streambank Erosion (375 Miles Total)						
Increasing		14%	14%	15%	42%	42%
Static		45%	41%	47%	40%	38%
Decreasing		26%	30%	23%	3%	5%
Unknown		15%	15%	15%	15%	15%
Wild Horses (Numbers)	1,531	1,365	900	1,100	600	3,666
Recreation						
Projected visitor use		NC	NC	NC	NC	NC
Visual Resources (Contrast)		NC	−L	−L	NC	NC
Special Areas						
Degradation		NC	NC	NC	NC	NC
Socioeconomics[2]						
Local personal income ($000)	44,100	+120/+120	+3045/+3430	+1918/+2700	+567/+900	−250/+466
Local employment (jobs)	1,320	+4/+4	+114/+104	+66/+81	+19/+27	−5/+14

Note: NC = no change, + = beneficial, − = adverse, L = low, M = medium, H = high

[1] Species composition of key woody and herbaceous species.
[2] Socioeconomic impacts are shown as changes from the existing situation in Malheur County. Short term/long term changes in personl income (at annual rates) is in thousands of 1981 dollars.

A grazing system consists of one or more planned livestock grazing treatments that change or maintain the composition of key species. Key species are plants that indicate whether management objectives are being reached. Grazing systems that allow plants to complete critical growth stages generally result in increases in, or maintenance of key species. In the Southern Malheur EIS area, the critical part of the growing season normally occurs from May 15 to July 15, depending on elevation. See Table 1-3 for approximate growth stage dates for upland and riparian key species. Appendix C, Table C-1, shows proposed grazing systems by allotment and pasture for each alternative. Grazing systems are defined in the glossary. Figure 1-3 shows typical examples of proposed systems.

Range improvements are proposed for several reasons: to implement more intensive grazing systems, to allow deferment of grazing use on native range during the spring, to improve livestock distribution to protect riparian areas, and to increase forage production. Brush would be removed prior to seeding on areas proposed for vegetation manipulation (see Figure 1-2). Some projects would have brush control only. Brush control would employ either burning or spraying; however, the treatment method has not been determined for individual projects. Generally, areas containing needlegrasses and/or rabbitbrush and areas with sandy soils would not be burned. Standard procedures and design elements for range improvements are described in Appendix D.

Interrelationships

BLM Planning

The BLM planning system is essentially a decisionmaking process that uses public input and resource information.

Land use objectives and rationale for each resource use category were developed and incorporated into the proposed Management Framework Plan (MFP). Specific MFP recommendations relating to the grazing program, with some modification to reflect public input, were used as a basis for developing the alternatives. The EIS scoping summary set forth in Appendix A more fully explains the relationship between the MFP alternatives and the EIS alternatives.

After the decision, the existing Allotment Management Plans (AMPs) and Wild Horse Herd Management Plans (HMPs) will be revised to correspond with the allocations and grazing management described in the Record of Decision.

Federal Agencies

Grazing on lands administered by other Federal agencies is not contingent upon grazing on BLM-administered lands. However, each portion is an integral part of the rancher's total operation. Coordinated planning among the concerned Federal agencies and ranchers assures that resource conflicts are resolved and management goals are met.

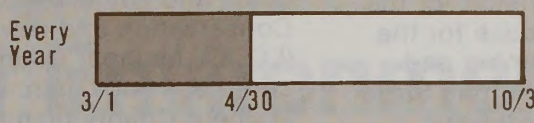
Table 1-3 Approximate Growth Stage Dates for Key Species[1]

	4,000' Elevation				6,000'Elevation			
Species[2]	Start of Growth	Peak of Flowering	Seed Ripe	Dormancy	Start of Growth	Peak of Flowering	Seed Ripe	Dormancy
Bluebunch wheatgrass	3/15	6/15	7/15	8/15	4/25	7/15	8/15	9/15
Idaho fescue	4/1	7/1	8/1	9/15	5/10	7/20	9/1	10/1
Crested wheatgrass[3,4]	3/10	6/10	8/1	9/1	N/A	N/A	N/A	N/A
Squirreltail	3/25	6/1	7/1	8/1	5/1	6/25	8/1	9/1
Thurber's needlegrass	4/1	6/15	7/15	9/1	N/A	N/A	N/A	N/A
Sandberg's bluegrass[4]	3/10	4/15	5/15	6/15	4/15	6/25	8/1	9/1
Bitterbrush[5]	4/10	6/5	7/30	11/1	5/1	7/1	8/20	11/1

[1] Average year at the 4,000 foot and 6,000 foot elevation.
[2] Scientific names for the plants listed are shown in Appendix F.
[3] Key species for seeded areas.
[4] Key species for deer and antelope spring range.
[5] Key species for deer winter range.
N/A Plant does not occur at this elevation.

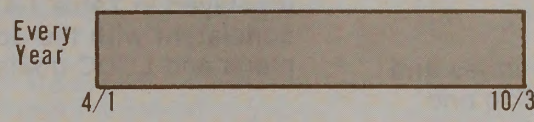
FIGURE 1-3 EXAMPLES OF TYPICAL GRAZING SYSTEMS OF TREATMENT BY PASTURE

SPRING GRAZING:



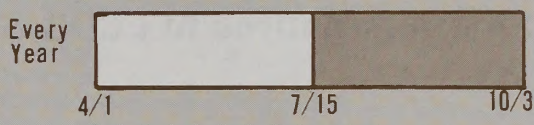
Graze early during the growing period

SPRING/SUMMER GRAZING:



Graze during the growing period

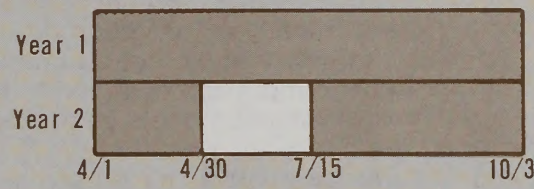
DEFERRED GRAZING:



Graze after seedripe

DEFERRED ROTATION:

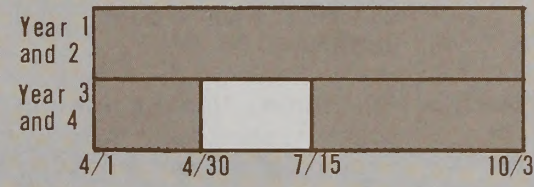
1. Annual Rotation



Graze during the growing period

Graze early and after seedripe

2. Biannual Rotation

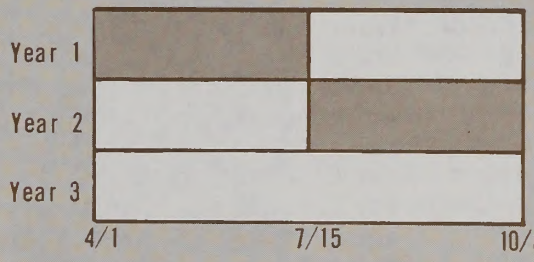


Graze early during the growing period

Graze early and after seedripe

REST ROTATION:

1. Three Pasture System

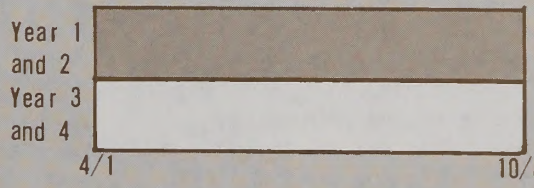


Graze during the growing period

Graze after seedripe

Rest the entire year

2. Two Pasture System (Biannual Rotation)



Graze during the growing period

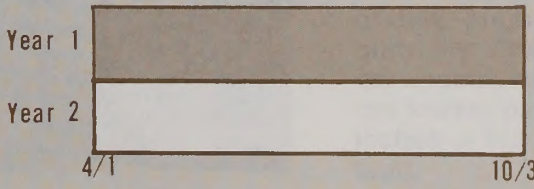
Rest the entire year

LEGEND

Rest

Graze

3. Two Pasture System (Annual Rotation)



Graze during the growing period

Rest the entire year

State and Local Governments

The Intergovernmental Relations Division for the State of Oregon acts as a clearinghouse for the various State agencies. All BLM planning and major actions are coordinated through this State Clearinghouse. Planning is also coordinated with county commissioners and/or county planning commissions.

Under Oregon Senate Bill 100, all counties and cities in Oregon are required to develop and adopt comprehensive plans and land use controls consistent with statewide planning goals and guidelines developed by the Land Conservation and Development Commission (LCDC). Malheur County has adopted a comprehensive plan. LCDC review of the Malheur County plan has not yet occurred. The relationship of the alternatives to LCDC goals is displayed in Table 1-4. All the alternatives are consistent with the adopted comprehensive plans and LCDC goals.

Table 1-4 Relationship of the Alternatives to LCDC Goals[1]

LCDC Statewide Goal Number and Description	Discussion
1. To ensure citizen involvement in all phases of the planning process.	BLM's land-use planning is a process providing for public input at various stages. Public input was specifically requested in developing the preferred alternative and other alternatives described in the EIS. Public input will continue to be utilized in the environmental decision processes.
2. To establish a land-use process and policy framework as a basis for all decisions and actions.	The alternatives have been developed in accordance with the land-use planning process authorized by the Federal Land Policy and Management Act of 1976 which provides a policy framework for all decisions and actions.
5. To conserve open space and protect natural and scenic resources.	The Bureau planning system considered natural and scenic resources in the development of the alternatives. Fencing and vegetation manipulation projects in Alternatives 2 and 3 would impact natural and scenic resources.
6. To maintain and improve the quality of the air, water and land resources.	Water quality would be maintained and/or improved under Alternatives 3, 4 and 5 and would be maintained and/or degraded under Alternatives 1 and 2. Air quality would not be significantly impacted.
8. To satisfy the recreational needs of the citizens of the State and visitors.	The BLM actively coordinates its outdoor recreation and land-use planning efforts with those of other agencies to establish integrated management objectives on a regional basis. Under all the alternatives, opportunities would be provided to meet recreational needs.
9. To diversify and improve the economy of the State.	Alternatives 2, 3 and 4 would induce economic gains in the long term due to increased forage production, resulting in improved local and State economy.

[1] Goals 3, 4, 7, 10, 11, 13 and 14 developed by the LCDC are not generally applicable to the alternatives.

Chapter 2
Affected Environment

Introduction

This section describes the resources within the Southern Malheur EIS area as they existed in 1981 (base year). Only those resources most likely to be impacted by components of the alternatives are discussed. Analysis, including the scoping process, indicated that resources such as minerals and timber would not be impacted. Air quality would not be significantly impacted in the long term although localized short term impacts due to prescribed burning are expected.

The EIS area lies in southeastern Oregon (see vicinity map), and is characterized by rolling plains of lava flows and lava outcrops, and fault-block mountains. The area has a semiarid climate, with cool, moist winters and hot, dry summers. Most of the area receives 8 to 12 inches of annual precipitation, with about half occurring during the months of November through February. Much of this comes as snow, especially in December and January. Spring rains occur in May and June, while the months of July, August and September are generally quite dry. Precipitation tends to be elevation-dependent, ranging from less than 8 inches in the lowest part of the area (2,200 feet), to 25 inches in the highest part of the area (8,100 feet).

Vegetation

The Southern Malheur EIS area has 10 major vegetation types as shown in Figure 2-1 and Table 2-1. Big sagebrush, low sagebrush and seedings are the predominant vegetation types, covering approximately 87 percent of the area. Big sagebrush and rabbitbrush are invading the seedings in some areas. Spot symbols on Figure 2-1 designate the approximate location of aspen communities, streamside riparian vegetation communities and shoreline riparian vegetation associated with lakes and reservoirs.

The total existing livestock forage production for public land in the EIS area is 462,249 AUMs. Livestock forage production is the portion of total vegetation production which is available and suitable for sustained use by livestock. Annual livestock forage production is dependent upon climate, soil characteristics and species composition. Yearly variation in the timing and amount of precipitation results in large annual fluctuations in total forage production. Soil characteristics that influence forage production are primarily those which affect moisture-holding capacity. The amount of forage species in the plant community by forage species is the third major factor which determines livestock forage production.

From 1962-1972 Congress appropriated over $10 million to the Vale District for an intensive rangeland rehabilitation program designed to halt erosion, stabilize the livestock industry, and benefit other land uses (see existing range improvements, Table 1-1). The Southern Malheur EIS area encompasses 90% of the project area, and grazing management has been in effect on most of the area since the completion of the Vale project. Overall forage production has increased (Heady 1977) and is in excess of active livestock preference.

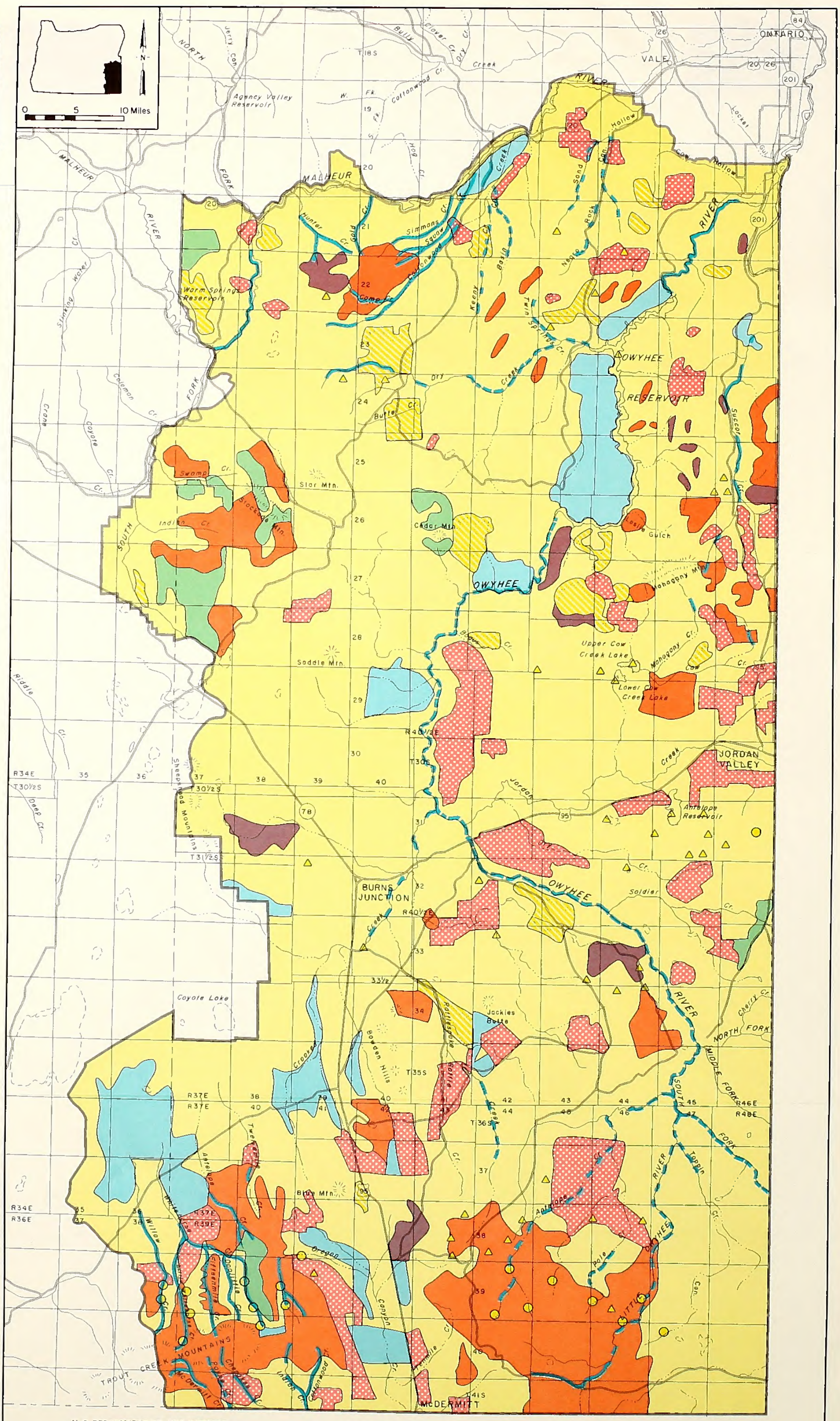
Livestock forage production for each allotment is listed in Appendix B, Table B-1. The methodology for determining production is described in Appendix C.

Range condition, as the term is used in this document, is the present state of vegetation of a range site in relation to the potential climax plant community for that site. Trend in range condition is the direction (upward, static or downward) a plant community is moving in relation to the potential climax community for that site. Forage condition is a rating given to seedings only and expresses the amount of crested wheatgrass present. Range and forage condition and trend of the EIS area are summarized in Table 2-2. Appendix C, Table C-1,

Table 2-1 Vegetation Types in the EIS Area

Vegetation Type	Public Land Acres	Percent of EIS Area	Common Plant Species[1]
Big Sagebrush[2]	2,529,634	63	Big sagebrush, rabbitbrush, bluebunch wheatgrass, bottlebrush squirreltail, cheatgrass, Sandberg's bluegrass
Low Sagebrush	640,263	16	Low sagebrush, Sandberg's blue grass, bluebunch wheatgrass, bottlebrush squirreltail
Seedings (Existing)[3]	320,293	8	Crested wheatgrass
Desert Shrub	192,603	5	Shadscale, spiny hopsage bud sage, big sagebrush, cheatgrass, bluebunch
Grass (Native bunchbrass, cheatgrass)	123,485	3	Bluebunch wheatgrass, cheatgrass, bottlebrush squirreltail
Rabbitbrush	116,216	3	Rabbitbrush, big sagebrush, bluebunch wheatgrass, bottlebrush squirreltail, Sandberg's bluegrass
Juniper/Mahogany	66,787	2	Western juniper, big sagebrush, low sagebrush, Idaho fescue, luebunch wheatgrass
Streamside Riparian	2,814	<1	Willow, wild rose, mock orange, sedges, rushes, Kentucky bluegrass
Reservoir Riparian	155	<1	Willow, sedges, rushes
Total	**3,992,250**		

[1] Scientific names for plants are listed in Appendix F.
[2] Includes minor amounts of aspen and chokecherry.
[3] Includes all seeded area.



U. S. DEPARTMENT OF THE INTERIOR
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VALE DISTRICT

SOUTHERN MALHEUR ENVIRONMENTAL IMPACT STATEMENT

1983

FIGURE 2-1
VEGETATION TYPES

LEGEND

- Low Sagebrush
- Big Sagebrush
- Desert Shrub
- Rabbitbrush
- Juniper/Mountain Mahogany
- Seedings
- Grass
- Riparian – Streamside
- Riparian – Lakes and Reservoirs
- Aspen

Table 2-2 Condition and Trend Summary

Native Range (Range Condition)	Public Land Acres	Percent of Public Lands EIS Area
Late	786,086	20
Middle	2,361,584	59
Early	333,960	8
Unknown[1]	177,052	4
Seedings (Forage Condition)		
Excellent	222,953	6
Good	62,765	2
Fair	42,106	1
Poor	5,744	<1
Total (Native & Seedings)	**3,992,250**	**100**
Range Trend		
Up	642,657	16
Static	2,986,068	75
Down	186,473	5
Unknown[1]	177,052	4
Total	**3,992,250**	**100**

[1] Acreage classified as unknown includes small tracts of federal range fenced in with private pastures and unallotted areas.

shows the existing range condition and trend in range condition for each proposed pasture in the EIS area. The methodologies for determining range and forage condition and trend are described in Appendix E.

Residual ground cover expresses the amount of live vegetation, standing dead vegetation and litter which remains after grazing. Over time, the accumulation of this material provides protection for the soil surface and replenishes soil nutrients. There is little change in total live vegetative cover as range conditions decline, however the amount of desirable forage species decreases and is replaced by less desirable species.

Streamside riparian vegetation occupies approximately 2,814 acres of public land. Neither range condition nor forage condition have been determined for riparian vegetation. However, a method has been developed for determining the improvement potential of riparian vegetation, and is described in Appendix G. Riparian vegetation improvement potential is a measure of the difference between the potential climax plant community and the present plant community.

About 83 percent of the stream riparian acres, primarily along the Owyhee and Little Owyhee Rivers, have little or no potential to respond to changes in livestock management, either because they are inaccessible to livestock (due to dense shrub cover, steep, rocky terrain, unallotted states or existing fences) or riparian improvement potential is low (i.e. vegetation growth is limited by natural factors such as low summer flow, stream channel scour or limited soil productivity).

Approximately 17 percent of the streamside riparian acres have a medium or high riparian vegetation improvement potential. Due to repeated disturbance, the species density and composition of these riparian areas are at less than potential.

Shoreline riparian vegetation associated with lakes and reservoirs occupies approximately 155 acres of public land. An inventory of the improvement potential in these areas determined approximately five percent was in high, eight percent was medium and 86 percent was in low. When undisturbed, shoreline riparian areas are generally dominated by herbaceous species such as sedges, rushes and smartweed although a few lakes and reservoirs support a wide variety of shrubs and trees along their margins. The annual production and total extent of shoreline riparian areas are highly variable, depending upon seasonal fluctuations in water levels.

No plants in the EIS area are presently listed as threatened or endangered under the Endangered Species Act. Fifteen plant species that are under review by the U.S. Fish and Wildlife Service for possible listing as endangered or threatened status (45 FR 82480) have either been sighted or are suspected to occur in the EIS area. Information concerning these plant species is found in Table 2-3. Eight additional plant species considered by BLM as sensitive occur in the EIS area. The Southern Malheur Unit Resource Analysis (on file at the Vale District Office) contains a full listing with habitat information for these sensitive species.

Soils

Soils in the EIS area have been surveyed and described in Oregon's Long-Range Requirements for Water (Lindsay et al. 1969; Lovell et al. 1969). Soil units from the survey have been combined into four general divisions based on similar soil properties within two broad land types, Basin Land and Terrace (occuring on about 20 percent of the EIS area) and Uplands (80 percent).

Table 2-3 Plant Species Under Review for Nomination for Threatened or Endangered Status[1]

Scientific Plant Species Name	Notice of Review Category[2]	Habitat Information	Allotments[3]
Amsinckia carinata	1	Rocky soil	Suspected
Astragalus milfordae	1	Sandy places near rivers, sandy bluffs and dune like	0501, 0502
Astragalus solidarius	2	Stiff clays of valley floors and mesas	0405, 0406, 0503, 0801, 0902, 1101
Astragalus sterilis	1	Dry gravelly and sandy clay bluffs nearly bare of other vegetation	0405, 0502, 0503
Collomita macrocalyx	1	Undisturbed, dry open rocky slopes and ridges	Suspected
Hackelia ophiobia	1	Cracks and crevices of rocky, basalt bluffs and cliffs shaded sandy talus	1102
Ivesia rhypara	1	Loose volcanic tuff	0503
Lepidium davisii	1	Hard white clay playas	0801
Lomatium laevigatum	1	Cracks of basalt cliffs and open rocky slopes	Suspected
Lupinus biddlie	1	Sagebrush flats and drainages	Suspected
Mentzelia mollis	1	Green or grey montmorillonite soil	0503, 0504
Mentzelia packardiae	1	Volcanic ash soils high in potassium	0503
Rorippa columbiae	2	Moist areas in gravelly soil	Suspected
Senecio ertterae	1	Dry clayey ash soils	0503
Trifolium owyheense	1	Slopes of loose diatomaceous talus	0503

[1] As published in "Endangered and Threatened Wildlife and Plants: Review of Plant Taxa for listing as Endangered or Threatened Species" Federal Register Vol. 45, No. 24, 12/15/80.
[2] Category 1 = Sufficient biological justification exists for listing as endangered or threatened status; Category 2 = Further study is needed to determine if biological justification for listing exists. Categories are subject to change as new information becomes available.
[3] Allotments are listed in which the subject plant has been sighted on public land.

The Basin Land and Terrace soils occur in the valley areas. The soils are loamy to clayey in texture, deep and well drained. Poorly drained soils occur in lakebeds which are inundated during the winter and spring. Sandy soils generally occur along the shorelines of old lake beds in association with sand dunes. Sandy soils are susceptible to wind erosion.

The Upland soils are derived from volcanic rocks and are generally loamy to clayey, shallow and stony. Rock outcrops and very shallow and/or very stony soils are low in productivity and support sparser stands of vegetation than the deeper soils.

Erosion on upland areas (areas other than along streams) is generally low to moderate. Streambank erosion is occurring along some streams. Streambank stability was surveyed during a 1979 and 1980 fisheries habitat inventory on selected streams in the EIS area. Of the 263 miles surveyed that were accessible to livestock, 55 miles had heavy streambank erosion damage. Some of the streams with the most erosion are in the Trout Creek Mountains and include Willow, Cherokee, Little Whitehorse, Payne, Mine, Chicken, McDermitt, and Indian Creeks. There is generally a direct relationship between streambank stability and the amount of riparian vegetation present. Streambank trampling and soil compaction also cause stream channels to become unstable and accelerates natural erosion and headcutting (see glossary).

Water Resources

Most of the streams in the Southern Malheur EIS area flow into the Owyhee River. A few streams flow into other river drainages: Venator, Swamp, and Indian Creeks flow into the South Fork of the Malheur River; Cottonwood, Squaw and Keeney Creek flow into the Malheur River; Oregon Canyon Creek and McDermitt Creek flow south into the Quinn River; and Whitehorse and Willow Creeks drain from the north side of the Trout Creek Mountain into Coyote Lake, a dry playa.

Water Quantity

Streamflows in the EIS area are extremely variable. For example, recorded annual streamflows in the Owyhee River range from 195,000 acre-feet to 1,750,000 acre-feet, with an average flow of 670,000 acre-feet.

Highest stream flows occur during winter and spring months from rainstorms augmented by snowmelt and/or frozen ground conditions. The peak months of discharge are between February and May when 60 to 80 percent of stream flow occurs. Most of the smaller streams in the EIS area are intermittent, flowing only for brief periods as a result of snowmelt or rainfall.

The Malheur River and Owyhee River are regulated by dams to deliver irrigation water to

farmland during the summer months. The majority of farmland irrigated by these dams is found outside the EIS area in the northern half of Malheur County near Vale and Ontario. Other irrigation occurs near private ranches where stream water is diverted into alfalfa or hay meadows.

Upper and Lower Cow Lakes, Bogus Lake and the Pothole lakes formed by the Jordan Craters Lava flows are the only natural lakes in the Southern Malheur EIS area

Hundreds of reservoirs have been developed for livestock watering, but the vast majority of these collect only spring runoff, are less than an acre in size and experience substantial drawdown. A small number of reservoirs are fed by perennial water sources and therefore maintain a constant water level that allows successful fish stocking and development of riparian vegetation. Several major irrigation reservoirs are surrounded by public lands, including Warm Springs, Owyhee and Antelope Reservoirs.

The ground water table in the Owyhee Basin is well below the ground surface and well yields are generally poor except in the larger basins and valleys. Ground water from wells does not provide a significant amount of livestock water, but many springs have been developed to divert water into stock watering troughs. In general, groundwater withdrawal does not exceed the natural recharge in the Owyhee Basin (Pacific Northwest River Basins Commission 1970).

Water Quality

According to the Oregon Department of Environmental Quality (ODEQ, 1976) the water quality in the Malheur and Owyhee River Basins in Malheur County were below acceptable standards established under the Oregon Administrative Rules, Chapter 340.

A more recent water sampling program (Malheur County 1980) verified that water quality was poor in the sections of Lower Malheur and Owyhee Rivers that drain irrigated row crop land, but was generally in good condition in the upper reaches of streams flowing through public lands. BLM inventories conducted during 1979 and 1980 indicate that most water quality problems on public land in the EIS area are associated with livestock grazing. Water temperatures, suspended sediments and fecal coliforms are occasionally above state standards.

Groundwater quality in the EIS area is generally good: dissolved solids are less than 1000 milligrams per liter (mg/L). Excess sodium, boron and arsenic cause problems in some areas (PNW River Basins Commission, 1970).

Wildlife

Animals whose habitat or populations would be impacted by the alternatives are discussed. Data for mule deer, pronghorn antelope, water-associated birds and sage grouse are summarized in Table 2-4. Fish data are summarized in Table 2-6. Mountain lion, bobcat, bighorn sheep and coyote are not discussed because their habitat and populations are not expected to change significantly as a result of the alternatives. A complete species list of the Vale District with general habitat relationships is published in Wildlife of the Pacific Northwest (Guenther and Kucera 1978). Wildlife Habitats in Managed Rangelands (Thomas, 1979) describes how each wildlife species uses various plant communities. Habitat inventories and site specific discussions of wildlife are available at the Vale District Office.

Habitat Diversity

Habitat diversity can be correlated with the range condition described in the vegetation section. Generally, vegetation communities in the EIS area with late range condition have greater habitat diversity than similar areas in early or middle condition. Large seedings usually have low habitat diversity although they are often rated in good forage condition. The boundary between the grass seeding and the native sagebrush community provides an area of greater habitat diversity. Riparian areas with trees, shrubs and herbaceous species provide greater habitat diversity than areas with only one of these components. In general, the greatest numbers and kinds of wildlife are found in areas with the greatest habitat diversity.

Table 2-4 Summary of Important Game Populations in the EIS Area

Animal or Animal Groups	Habitat (Public Acres)		Population
Mule Deer	Winter Range	163,000	
	Summer Range	2,755,000	40,400
Pronghorn Antelope	Winter Range	600,000	2,500
	Summer Range	2,838,000	
Water-Associated Birds	Lakes and Reservoirs	2,100	Unknown
Sage Grouse	Nesting Habitat	99,800	Unknown

Threatened and Endangered Animals

The American peregrine falcon is classified as endangered and the bald eagle is classified as threatened in Oregon under the Endangered Species Act of 1973. Although both species migrate through the EIS area, observations are rare and no active nests have been found. Bald eagles are attracted to areas where wintering waterfowl concentrate.

The western snowy plover and kit fox are classified as threatened by the Oregon Department of Fish & Wildlife (ODFW 1977) and are known to occur in the EIS area.

Riparian Areas

In the EIS area, the scarce water and water-associated vegetation located in riparian areas are very important to wildlife as sources of food and cover (Thomas 1979). For impact analysis these areas have been divided into two groups: streamside riparian habitat and shoreline riparian habitat.

Streamside riparian habitat are the linear strips of vegetation along streams. About 2,814 acres along 375 stream miles occur on public lands in the EIS area. Shoreline riparian habitat occurs on 155 acres along lakes, reservoirs, and marshes which are permanently or seasonally covered with water (see Figure 2-1). Appendix G describes the methodologies for wildlife habitat condition ratings in riparian areas. Table 2-5 summarizes the condition of habitat at streams, lakes and reservoirs.

Upland meadows not along streams, primarily in the Trout Creek Mountains, and riparian areas adjacent to isolated springs have neither been quantified in acres nor mapped. Consequently, these areas are not illustrated in Figure 2-2 or included in riparian acreages. Habitat for wildlife is below potential in most upland meadows because of heavy livestock use. Headcutting has lowered water tables and eliminated meadow habitat.

A site specific listing of riparian areas is shown in Appendix G, Tables G-1 and G-2.

Table 2-5 Existing Condition of Wildlife Habitat in Riparian Areas

Condition[1]	Streamside Riparian Miles	Streamside Riparian Acres	Lake and Reservoir Riparian Acres
Excellent	7	20	3
Good[2]	173	2118	8
Fair[3]	125	449	79
Poor	15	61	53
Unknown	55	166	12
Total	**375**	**2814**	**155**

[1] Riparian inventory methodology shown in Appendix G.
[2] Includes 78 miles and 1,840 acres located in unallotted areas.
[3] Includes 3 miles and 15 acres located in unallotted areas.

Fish

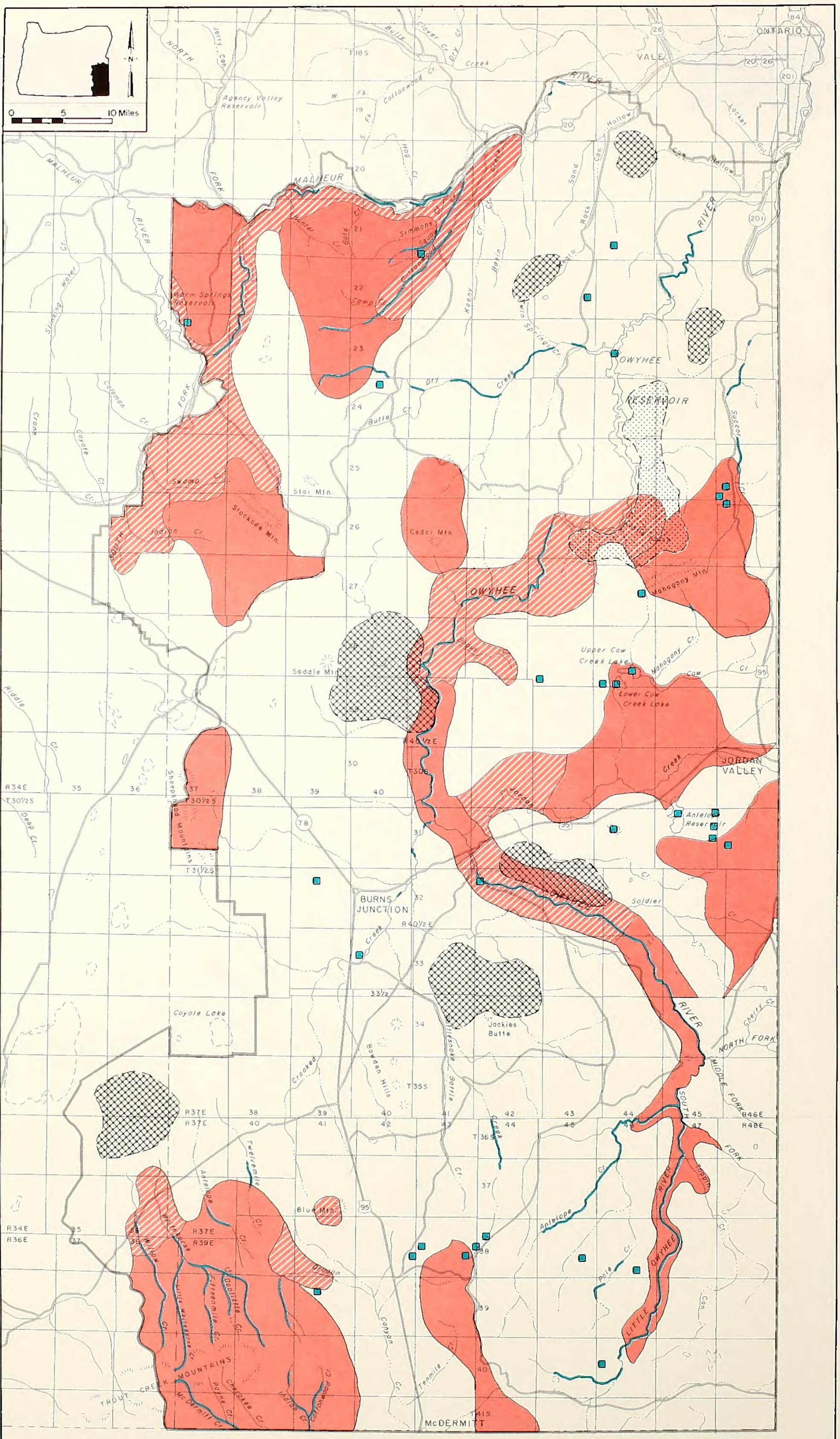
About 253 of the 375 stream miles are considered fish habitat. Approximately 213 miles of the stream fish habitat are in poor or fair condition for fish (see methodology described in Appendix G). About half of these areas were rated poor or fair due to natural limiting factors such as low summer flow and limited pool habitat. High sediment loads, high water temperatures, variable flows, a lack of riparian vegetation and a lack of pool habitat are characteristics of poor or fair fish habitat on BLM administered lands. Habitat condition and species occurence for each stream and reservoir are displayed in Tables 2-6 and 2-7.

Rainbow trout, Lahontan cutthroat trout, crappie and black bass are planted in streams and reservoirs throughout the EIS area to maintain the sport fishery.

Native fish in the EIS area include redband and cutthroat trout, speckled dace and redside shiners, bridgelip suckers, mountain whitefish and sculpins. Some of these fish are relicts of once widespread species that evolved through isolation into new species and subspecies having a restricted range. Because of limited range and declining habitat, the American Fisheries Society has recognized two fishes as being of "special concern" (Deacon et al. 1979): redband trout and Whitehorse cutthroat trout. Redband and Whitehorse trout are native to the EIS area. As a result of the introduction of rainbow trout, redband trout populations have been greatly reduced through hybridization. A pure strain of redband trout is being used by ODFW as a source of brood stock for rearing in a hatchery (Wilmont 1974). The Whitehorse cutthroat trout has been introduced into Antelope Creek.

Water-Associated Birds

Approximately 70 species of birds use the area's wetlands during migration or for nesting. Some representative species are the Canada goose, whistling swan, cinnamon teal, mallard, gadwall, long-billed curlew, American avocet, Wilson's phalarope and spotted sandpiper. Thousands of birds use the Jordan Craters area and adjacent Cow Lakes. Approximately 2,100 public acres of wetlands associated with 47 lakes and



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VALE DISTRICT

SOUTHERN MALHEUR ENVIRONMENTAL IMPACT STATEMENT

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FIGURE 2-2
WILDLIFE HABITAT

LEGEND

- Deer Habitat
- Deer Winter Range
- Antelope Winter Range
- Fish Habitat - Streams
- Fish Habitat - Lakes and Reservoirs
- California Bighorn Sheep Yearlong Range

Table 2-6 Summary of Stream Fisheries

Stream (Drainage)	Fish Habitat Condition (Public Miles)[1] Poor	Fair	Good	Excellent	Allotment	Fish Species
Antelope Cr[2]			2.00		1201	WCT
Antelope Cr[3]		7.00			1306	NG
Carter Cr				0.25	0500	NRB
Carter Cr			1.25		0500	NRB
Carter Cr		0.75			0500	NRB
Carter Cr	0.50				0500	NRB
Cottonwood Cr[4]			0.75		1202	LCT/RBT,NG
Cottonwood Cr[4]		1.00			1202	LCT/RBT,NG
Cottonwood Creek[5]		7.00			0300	NRB,NG
Cottonwood Creek[5]	3.50				0300	NRB,NG
Crooked Cr			2.50		0801	NG
Crooked Cr	0.50				0801	NG
Doolittle Creek			2.00		1201	WCT
Doolittle Creek		4.00			1201	WCT
Dry Cr		2.50			0400	RBT
Dry Cr	N G , R B T					0400
Fifteen Mile Cr			3.00		1201	WCT
Indian Cr			2.25		1202	LCT/RBT,NG
Indian Cr		1.50			1202	NG,RBT
Indian Cr	3.50				1202	NG,RBT
Jordan Cr		2.00			UNA	NG
L Whitehorse Cr			1.75		1204	WCT
L Whitehorse Cr		4.65			1204	WCT
L Whitehorse Cr	2.25				1204	WCT
Line Canyon Cr		2.00			1203	LCT/RBT,NG
Little Owyhee River			2.00		1307	NG,RBT
Little Owyhee River		25.50			1307	NG,RBT
Little Owyhee River	1.25				1307	NG,RBT
Malhuer River			9.40		UNA	RBT,LCT,NG
Malheur River					0300	RBT,LCT,NG
Malheur River					0304	RBT,LCT,NG
Malheur River					0410	RBT,LCT,NG
Mc Dermitt Cr			3.25		1203	LCT/RBT,NG
Mc Dermitt Cr					1203	BT
Mc Dermitt Cr					1203	NG,LCT/RBT,BRT
Mc Dermitt Cr		8.25			1202	LCT/RBT,NG
Mc Dermitt Cr					1203	BT
Mc Dermitt Cr					1203	NG,LCT/RBT,BRT
NF Squaw Creek			1.00		0300	NRB
NF Squaw Creek		0.25			0300	NRB
NF Squaw Creek	2.00				0300	NRB
Oregon Canyon Cr			3.50		1201	LCT/RBT,NG
Oregon Canyon Cr		4.50			1201	LCT/RBT,NG
Oregon Canyon Cr	3.50				1201	LCT/RBT,NG
Owyhee River			5.30		UNA	CC,SMB,RBT,NG
Owyhee River					0400	CC,SMB,RBT,NG
Owyhee River					0408	CC,SMB,RBT,NG
Owyhee River					0502	CC,SMB,RBT,NG
Owyhee River		5.00			0303	CC,SMB,RBT,NG
Owyhee River					0400	CC,SMB,RBT,NG
Owyhee River					0506	CC,SMB,RBT,NG
Owyhee (Rome-RSRV)		41.0			UNA	CC,SMB,RBT,NG
Owyhee (3 Fks-Rome)		35.0			UNA	CC,SMB,RBT,NG
Pole Creek	4.75				1307	NG
Rattlesnake Cr		3.25			1305	NG,RBT
SF Squaw Creek		2.50			0300	NG
Snake River		0.30			UNA	CC,SMB,RBT,NG
Succor Creek		7.00			0500	NG,RBT
Whitehorse Creek		11.00			1201	WCT
Willow Cr			1.00		1204	WCT
Willow Cr		10.25			1204	WCT
Willow Cr	2.00				1204	WCT
Willow Cr (Trib)		2.00			1204	WCT
Total	**23.75**	**188.2**	**40.95**	**0.25**		

Key to Symbols:

LCT	Lahontan Cutthroat Trout
RBT	Rainbow Trout
LCT/RBT	Rainbow & Lahontan Cutthroat Hybrid
WCT	Whitehorse Cutthroat Trout
NRB	Native Redband Trout
NG	Non game species; e.g. speckled dace, bridgelip suckers, redside shiners, squawfish and/or others
BT	Brook Trout
SMB	Small Mouth Bass
CC	Channel Catfish
UNA	Unallotted Areas

[1] See Appendix G for criteria for evaluating stream conditions.
[2] Located in Whitehorse Basin.
[3] Tributary to Little Owyhee River.
[4] Tributary to Indian Creek.
[5] Tributary in Malheur River.

Table 2-7 Fishery and Wildlife Habitat at Lakes and Reservoirs

Lake/Reservoir	Surface Acres	Species[1]	Exisiting Fish Habitat Condition	Shoreline Vegetation Acres	Wildlife Habitat Condition	Allotment Number
ANTELOPE RES	2500	RBT	GOOD	60.6	GOOD	1002
BAR CROSS BASIN RES	2	RBT	GOOD	1.8	POOR	0500
BATCH LAKE	55	SMB,P,BH	GOOD	4.7	GOOD	UNA[2]
BLUE MTN #4 RES	2	RBT	FAIR	0.8	FAIR	1201
BOGUS LAKE	6	BH	FAIR	1.6	FAIR	0902
BONE CREEK RES	2	RBT	EXCELLENT	0.7	POOR	0701
CANTOR CORRAL RES	<1	RBT	GOOD	0.6	EXCELLENT	1002
CASTRO PIT RES	<1	RBT	GOOD	0.6	GOOD	1004
CHICO RES	3	RBT,LCT	EXCELLENT	1.1	POOR	1307
COW LAKE LOWER	700	WC,LMB	FAIR	16.8	POOR	0905
COW LAKE UPPER	900	WC,LMB	FAIR	19.1	POOR	0905
DAWSON RES	1	RBT,LCT	GOOD	0.6	FAIR	1201
DOG CR RES	<1	RBT	GOOD	0.3	GOOD	0500
ECHAVE RES	1	RBT,LCT	FAIR	0.6	POOR	1302
GLUCH PIT RES	<1	RBT	FAIR	0.6	GOOD	1002
HANG UP RES	1	RBT	GOOD	0.6	POOR	0500
HICKS CANYON RES	2	RBT,LCT	GOOD	0.9	FAIR	1002
JEFFS RES	5	RBT,LCT	EXCELLENT	1.4	POOR	1307
JUNCTION RES	1	RBT,LCT	FAIR	0.6	POOR	1401
LITTLE SNAKE RES	4	RBT	POOR	1.2	POOR	1305
LITTLEFIELD RES	1	RBT	EXCELLENT	0.6	POOR	0300
OWYHEE SPRINGS RES	1	SMB	GOOD	0.6	GOOD	1101
RATTLESNAKE #2 RES	2	RBT,LCT	FAIR	0.9	FAIR	1305
ROCK CREEK RES	325	BH	FAIR	7.7	GOOD	1001
RYEFIELD RES	<1	BG	FAIR	1.2	FAIR	0400
SADDLE BUTTE RES	2	RBT	GOOD	0.9	POOR	0500
SAGEBRUSH RES	<1	BG	GOOD	0.3	GOOD	0400
SCHNABLE CR RES	<1	RBT	FAIR	0.3	POOR	0500
SCHOOL HOUSE RES	<1	RBT,LCT	FAIR	0.6	FAIR	1201
SQUAW CREEK RES	3	RBT	GOOD	1.2	EXCELLENT	0300
STEER CANYON RES	1	RBT,LCT	FAIR	0.6	POOR	1307
VINES HILL RES	3	RBT	GOOD	0.9	FAIR	0407

[1] Key to Symbols:

LCT	Lahontan Cutthroat Trout	RBT	Rainbow Trout
BG	Bluegill	WC	White Crappie
LMB	Large Mouth Bass	BH	Bullhead Catfish
P	Perch	SMB	Smallmouth Bass

[2] Unallotted

reservoirs are periodically inundated and provide crucial nesting or feeding habitat (Figure 2-1). Some important use areas on public lands are Cow Lakes, Pothole Lakes, Bogus Lakes, and Antelope and Owyhee reservoirs. Bird production is below potential on some of these wetlands because livestock remove food and cover.

Mule Deer and Antelope

Deer are found primarily in areas illustrated on Figure 2-2. In 1980, populations were about 4 percent below ODFW objective levels for the EIS area (ODFW 1981a, 1981b; Polenz 1982). About 13,700 deer winter on ranges in the EIS area when snow forces them out of higher elevations. Food and cover provided by winter habitat are especially important because the deer's fat reserves decrease during the winter. Winter ranges are the first areas to have both annual and perennial green grasses and forbs in the spring providing forage needed by deer to improve their weakened condition.

Antelope bitterbrush is an important forage species for deer in the fall and early winter, especially in years when the herbaceous forage is covered by snow. Heavy livestock use of bitterbrush decreases food for deer on localized areas. Livestock use and trampling decreases forage and cover for deer in upland aspen stands which in turn inhibits reproduction.

About 40,400 deer summer on public lands within the EIS area. Summer and early fall forage is important because it increases fat reserves needed to sustain deer through the winter. Riparian areas provide nutritious green forage late in the summer when upland vegetation has dried.

About 2,500 antelope inhabit the EIS area, and populations have shown a slow, steady increase in recent years. During the summer, antelope are scattered throughout the EIS area. During severe winter weather antelope concentrate at lower elevations that are usually free from snow.

Antelope prefer low structured vegetation, especially that provided by low sagebrush, burned areas, shadscale and crested wheatgrass. Patches of big sagebrush enhance the habitat. Competition for forage with cattle and wild horses is slight due to different forage preferences (Vavra and Sneva 1978).

Most BLM fences in the EIS area allow freedom of movement for antelope by having the bottom wire at least 16 inches above the ground. Seedings and wildfire have converted dense stands of big sagebrush to low growing herbaceous vegetation that is preferred by antelope. Livestock water developments have expanded antelope use into areas previously unoccupied because of lack of water.

Other Mammals, Other Birds, Reptiles and Amphibians

Approximately 230 of these species inhabit the EIS area (Hall and Kelson 1957). Representative species include the black-tailed jackrabbit, beaver, ravens, golden eagle, western rattlesnake, and tree frog. Some species such as the beaver are found in specific habitat types; others, such as the deer mouse, occur throughout the EIS area. The highest wildlife species concentration and diversity occurs in riparian areas.

Sage grouse are found throughout the EIS area primarily in the big and low sagebrush types (Figure 2-1) and are relatively abundant in some areas such as Spring and Trout Creek Mountains. Strutting grounds exist, but have not been inventoried. Strutting grounds are crucial habitat because grouse mate each year in these natural clearings in the sagebrush. Most nesting occurs within two miles of a strutting ground. Sagebrush, besides being important as food, provides necessary escape and nesting cover. Upland meadows and meadows along streams are crucial habitat because they supply insects and succulent forbs to young birds (Savage 1969).

Chukar partridge, the most common game bird in the area, concentrate in steep rocky areas adjacent to streams and water developments. Chukars are abundant along the numerous canyons. California quail are closely associated with brushy riparian areas at elevations below 6,000 feet. Mourning doves are spring through fall breeding residents.

Table 2-8 Wild Horse Herd Management Areas

Herd Area	Herd Size (Adult Animals)		Wild Horse Use (AUMs)	
	1981	1982	1981	1982
Basque	30	38	360	456
Three Fingers	185	220	2,220	2,640
Cold Springs	140	167	1,680	2,004
Cottonwood Creek	40	64	480	768
Jackies Butte	175	215	2,100	2,580
Sand Springs[1]	578	260	6,936	3,120
Coyote Lake[2]	646	162	7,752	1,944
Sheepshead	310	385	3,720	4,620
Potholes	16	20	192	240
Stockade[3]	0	0	0	0
Morger[4]	0	0	0	0
Atturbury[4]	0	0	0	0
Cottonwood Basin[5]	0	0	0	0
Totals	**2,120**	**1,531**	**25,440**	**18,372**

[1] Horses were gathered in 1981 after census.
[2] Horses were gathered in 1981 after census.
[3] Horses were removed from this herd area in 1980 due to conflicts with private land inholdings.
[4] Horses were removed from Morger (1976) and Atturbury (1977) herd areas due to a lack of a season-long water source on public land.
[5] This herd area has not supported a viable herd in the past. Two horses were present in 1971. No horses have been counted in the herd area since 1974.

Wild Horses

All unbranded and unclaimed horses in the EIS area as of December 15, 1971 are considered wild and free roaming as defined in the Wild Horse and Burro Act (Public Law 92-195). Nine herd management areas, as shown in Figure 2-3 contained wild horses in the EIS area in the base year 1981. Four other herd areas (see Table 2-8) had no wild horses present in 1981 due to a lack of season-long water and requests from adjacent private landowners to remove horses in accordance with 43 CFR 4750.3.

In the herd areas in the EIS area, the minimum viable herd size (assuming no introductions of unrelated brood stock) is 75 animals. This level is based on the current estimate of the sex ratio of breeding males to breeding females.

Fences exist within the herd management areas to exclude wild horses from private lands or seedings. These fences restrict horse movements and have occasionally caused injuries to horses. See the Wild Horse Herd Management Plans or Herd Gathering Plans on file at the Vale District Office for additional information concerning the wild horses in the EIS area.

Recreation

Developed recreation sites in the EIS area include Snively Hot Springs, Twin Springs, Leslie Gulch, Cow Lakes, Antelope Reservoir, Succor Creek State Park, Owyhee State Park, and Rome Launch Site. A number of other primitive sites offer opportunities for camping and picnicking.

There are some unique recreational resources in the EIS area. In 1979, the National Park Service completed a study and Environmental Impact Statement recommending the Owyhee River as a component to the National Wild and Scenic Rivers System. The Saddle Butte Lava Tubes have been identified by the Oregon Grotto as an outstanding spelunking area. Rock and mineral collectors consider the McDermitt Petrified Wood Area as a quality collecting area.

A number of areas offer opportunities for geologic, zoologic, scenic, archeologic, historic and cultural sightseeing use. Examples of high quality sightseeing areas include the Owyhee River, the Honeycombs, Leslie Gulch, Owyhee Reservoir, Jordan Craters, the Trout Creek Mountains, Cottonwood Creek and Fifteen Mile Creek.

Hunting opportunities exist for big game, upland game, waterfowl and other species. Generally, high quality hunting opportunities occur for deer and antelope in the south and southwestern portion of the EIS area, for chukars in the Owyhee Breaks, Fifteen Mile and Trout Creek Mountains, and for ground squirrels, coyotes and jackrabbits in the entire EIS area. Fishing opportunities are available for cold and warm water species in reservoirs, streams and creeks. Owyhee Reservoir, Antelope Reservoir and the Owyhee River and its tributaries offer high quality fishing opportunities.

Table 2-9 shows the estimated current recreational visitor use for the EIS area. Of the total visitor use in Malheur County, about 30 percent is attributable to public land.

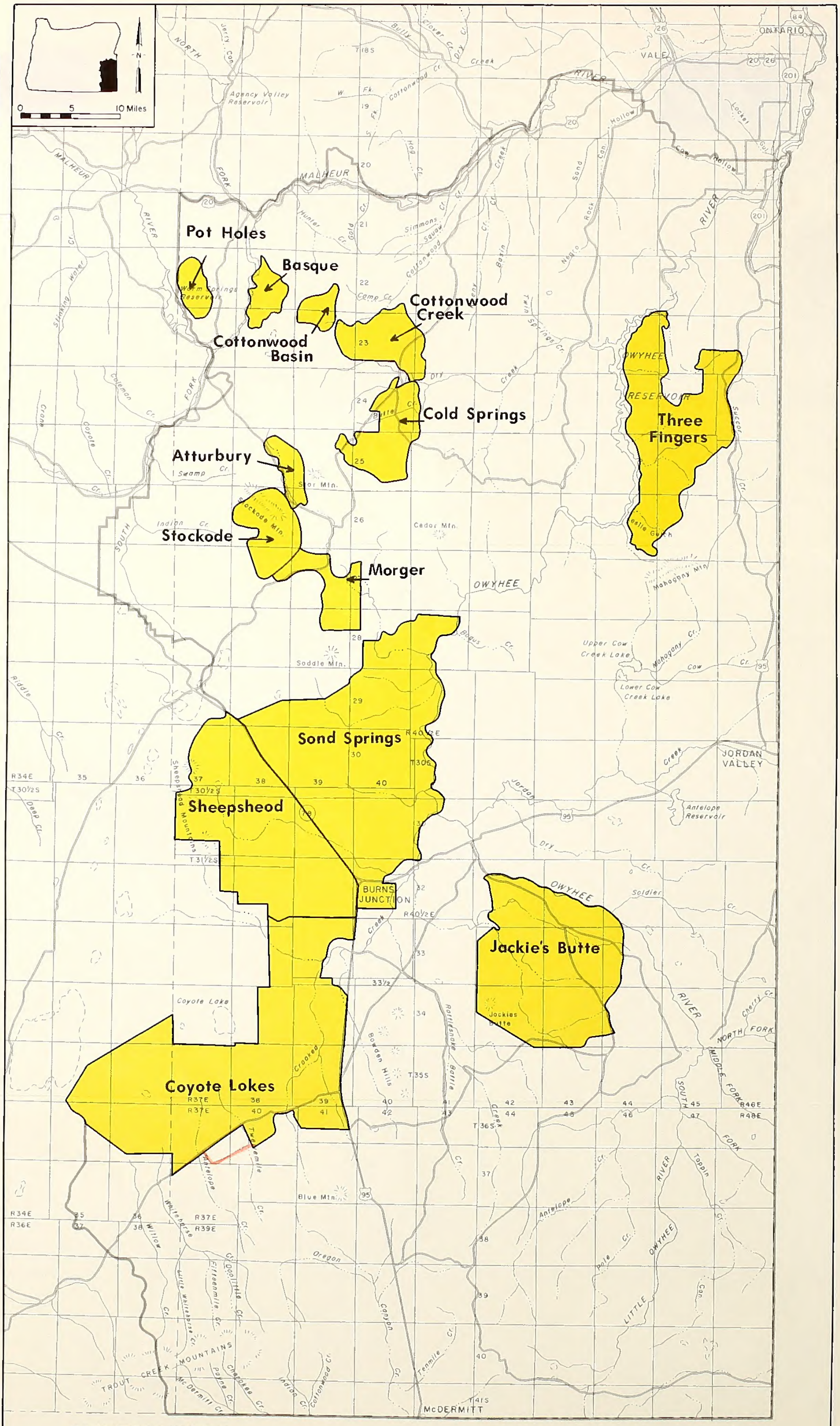
Visual Resources

Visual resources are the land, water, vegetation, animals and the other features (as described in this chapter) that are visible on public lands and comprise the scenic quality of the area. Visual resource management (VRM) objectives have been developed based on an inventory and evaluation of scenic quality, visual sensitivity and distance zone (see Glossary). Examples of highly scenic and sensitive areas on public land include the Honeycombs, Leslie Gulch, Owyhee River Canyon complex, Cottonwood Creek, Owyhee Reservoir Breaks, Louse Canyon, Jordan Craters, Fifteen Mile, Trout Creek Mountains and Malheur River Canyon.

Table 2-9 Estimated Recreational Visitation

Recreational Activity	1981 Visitation Visitor Days/Year Total (Malheur County)	Public lands within the EIS Area
Hunting		
Big game	113,700	22,100
Small game	22,000	13,000
Waterfowl	49,300	1,600
Upland game	158,100	27,500
Fishing		
Coldwater	63,140	8,600
Warmwater	117,260	3,600
Camping	287,600	70,200
Other Day Use	770,500[1]	333,400
Total	**1,581,600**	**480,000**

[1] Total area day use visitation includes urban and semi-urban activities not generally associated with range lands administered by the BLM.



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LEGEND

Herd Area

FIGURE 2-3
WILD HORSE HERD AREAS

VRM classes specify management objectives and allow for differing degrees of modification (BLM Manual 8411). Class I provides the highest level of protection for scenic values, and Class IV the lowest level. Public lands in the EIS area are VRM Class I (4 percent), VRM Class II (26 percent), Class III (22 percent) and Class IV (48 percent). VRM class delineations for the Southern Malheur EIS area are available in the Vale District Office.

Wilderness Values

The Federal Land Policy and Management Act of 1976 (FLPMA) directed BLM to inventory, study and recommend roadless areas of 5,000 acres or more for possible wilderness designation.

After consideration of public comments on the BLM wilderness review, the Oregon State Director announced his final decisions for public lands in the EIS area included in the intensive wilderness inventory. In the EIS area, 31 roadless areas (totaling about 1,328,100 acres) have been identified as Wilderness Study Areas (see Glossary) meriting further evaluation. The inventory the wilderness qualities of these WSAs was completed in 1982. An environmental impact statement that will assess the impacts of designating or not designating each WSA is being prepared.

Special Areas

Areas of Critical Environmental Concern (ACECs) are areas of public land where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards (FLPMA Section 103(a)).

Six areas nominated for ACEC consideration during the District's planning process have potential for designation (see Table 2-10). ACEC designation, if considered appropriate, will be part of the Management Framework Plan decisions for the area.

Research Natural Areas (RNAs, see Glossary) are established and maintained primarily for research and educational purposes. Four areas are being considered for RNA designation (see Table 2-10). The plant community or habitat types listed represent cell needs for RNAs as identified in the Oregon Natural Heritage Plan (1981).

Cultural Resources

The BLM defines three classes of cultural inventories (BLM Manual 8111). A Class I inventory of existing cultural resource information has been completed for the area (Boreson, Moody and Murphey 1979). Class II field sampling inventories have not been conducted in the EIS area. Class III intensive field inventories, undertaken prior to BLM actions which would result in ground disturbance or land ownership changes, have been performed in connection with state land exchanges and project development on approximately 200,000 acres of public land within the EIS area. All cultural resource inventories are consistent with requirements of the Programmatic Memorandum of Agreement between the BLM, Advisory Council on Historic Preservation and National Conference of State Historic Preservation Officers, dated January 14, 1980.

The above inventories have identified 989 cultural resource sites within the EIS area. Of these, 858 are prehistoric sites, 86 historical sites, and 44 paleontologic sites.

Class I and Class III inventory results are available in the Vale District Office. Summaries of the 44 paleontological sites located in the EIS area are contained in Schaller and Rimal (1981), and Cole (1980a and 1980b).

Socioeconomic Conditions

While several permittees live south or east of the Oregon state border in Nevada or Idaho, for purposes of analysis Malheur County will be considered the relevant region to evaluate socioeconomic impacts resulting from the proposed alternatives.

Population and Income

The population of Malheur County in 1981 was estimated to be 27,225 persons, an increase from the 1980 population of 26,896 persons. Population growth during the past decade was moderate, averaging 1.6 percent per year during the 1970's. The increase in 1981 amounted to 1.2 percent.

Total personal income in 1980 for the county was $204.2 million. Income per capita was $7,576 as compared with a state-wide average of $9,296. The portion of income attributable to the work force (i.e., labor and proprietors' income) amounted to $167.7 million of which $31.4 million was farm income and $131.3 million was non-farm income (USDC, 1982).

Table 2-10 Special Areas

Potential ACECs	Approx. Size (acres)	Description
1. Honeycombs	11,930	High quality scenic values of colorful soils and unique geological formations, three sensitive species of plants, and California bighorn sheep habitat.
2. Leslie Gulch	9,300	Habitat of two sensitive plant species, developed recreation sites, scenic value of unusual geologic formation, and California bighorn sheep habitat.
3. Owyhee River	30,400	Wild and Scenic River values, prehistoric and historic resources, and four sensitive plant species.
4. Jordan Crater	37,830	Outstanding example of recent lava flow, diversity of usual and pristine native vegetation, diversity of animals including several sensitive/threatened species, and safety hazards posed by collapsed pits and deep cracks.
5. Saddle Butte	6,400	High quality lava tube caves, geologic features, habitat of one sensitive animal species, and safety hazard posed by instability of cave ceilings.
6. Whitehorse Basin	90,000	Only known habitat for Whitehorse cutthroattrout a state and BLM listed sensitive species.
Total ACECs	**184,860**	
Potential RNAs		
1. Honeycombs	11,930	Big sagebrush, needle and thread grass on cinders, and five rare or sensitive plant species.
2. Mahogany Ridge	240	Extensive stand of mountain mahogany, sagebrush, and Oregon grape complex.
3. Stockade Mountain	640	Western juniper, big sagebrush, blue bunch wheatgrass, Idaho fescue, and low sagebrush.
4. Jordan Craters	37,470[1]	Three tip sagebrush, bunchgrass, silver sage community, and riparian vegetation.
Total RNAs	**50,360**	

[1] Includes 31,390 acres of previously designated RNA.

Economic Activity

The labor force, people working or looking for work, averaged 12,410 in 1981 for Malheur County, an increase from 11,520 in 1980. Unemployment averaged 8.1 percent of the labor force in 1981. The industrial composition of agricultural and non-agricultural wage and salary employment in 1981 is shown in Table 2-11.

In 1980 there were 1,998 farm/ranch proprietors (USDC 1982), and in 1981 an annual average of 2,186 farm wage and salary workers were employed (Oregon Department of Human Resources, 1983). The most recent estimate (USDC 1978) indicates approximately 570 farms and ranches in the county are engaged in beef production.

Agricultural production in 1981 was $146.3 million including $85.4 million in crops sold and $60.9 million in livestock and livestock products. There were 225,000 cattle and calves in the county on January 1, 1981. The value of cattle and calves sold was $47.7 million (OSU Extension Service, 1982).

The business of livestock production creates additional local sales activity through the purchases by ranches and their suppliers. A portion of these gross sales are earned by individuals as personal income. Estimates of the relationship of ranchers' sales to total gross sales and to personal income generated have been obtained from an inter-industry model for this county developed by the Forest Service for the year 1977 (USDA, FS 1982). (See Appendix H.) Applying these estimates to 1981 livestock sales figures, the total gross sales generated locally by livestock producers in 1981 was $109.3 million. Local personal income generated by the gross sales was $32.5 million.

The following section describes several measures of the value of BLM grazing privileges to the livestock industry, and estimates the amount of local income and employment generated by the existing level of activities arising from public land use.

Table 2-11 Wage and Salary Employment in Malheur County, 1981
(Average number of workers)

Industry	Employment	Percent
Non Agricultural		
Food Manufacturing	1,540	16.5
Other Manufacturing	190	2.0
(Subtotal Manufacturing)	(1,730)	(18.5)
Trade	3,030	32.5
Services	1,380	14.8
Government	1,910	20.5
Other*	1,280	13.7
(Subtotal Non-Manufacturing	(7,600)	(81.5)
Total Non Agricultural	**9,330**	**100.0**
Agricultural	2,186	100.0
Total Agricultural	**2,186**	**100.0**

* Includes: Construction, transportation, communications, utilities, finance, insurance and real estate.

Source: Oregon Department of Human Resources, 1982.

Dependence of Livestock Permittees on Public Forage

During the 1981 grazing year (3/1/81-2/28/82), 120 permittees held grazing privileges on public lands in the EIS area. Their active preference (see Glossary) totaled 320,346 AUMs, and their active (paid) use in 1981 was 309,103 AUMs. They reported total herds of 81,915 cattle which is about 36 percent of the cattle in Malheur County in 1981. Assuming 12 AUMs of forage for each animal per year, use of BLM forage provided 32 percent of total forage requirements. Thirty nine permittees were dependent on BLM forage for more than 50 percent of their annual requirements. The use of BLM forage is heaviest during spring and summer and comprises 90 to 100 percent of the forage requirements in that season for 51 of the permittees. Most permittees have very limited alternative forage sources during that period. Table 2-12 shows the average annual dependency (BLM forage as a percentage of total needs) and the distribution of permittees by peak level of dependence. Table 2-13 indicates the monthly patterns of forage use.

The Bureau of Land Management does not treat grazing permits as vested property rights; however, effects on private asset valuation may occur. Based on BLM file data and contract appraisal studies, the asset value of public forage is estimated to be $40-$45 per AUM. Estimates of the capitalization values placed on grazing permits associated with the selling of ranch properties have varied widely from this estimate. Grazing preferences have sold at prices ranging from $22 to $55 per AUM in southern Idaho according to the Owyhee Grazing Management FEIS (USDI, BLM 1980), and an average price of $65 per AUM was indicated in interviews with parties to the sale of several ranch properties in eastern Oregon during the years 1977 to 1979 (USDI, BLM 1980).

Table 2-12 Permittee Dependence on BLM Forage, By Herd Size Class[1]

(Dependence based on active use, 1981 grazing year)

Item	Herd Size Class Under 400	400-999	1,000+	Total
Permittees	52	47	21	120
Cattle[2]	11,433	28,979	41,502	81,915
Active Preference (AUMs)	51,943	138,164	130,239	320,346
Active Use (AUMs)	52,542	140,151	120,328	313,021
Number of permittees by highest monthly dependence:[3]				
Under 50 percent	10	7	9	26
50-59 percent	1	6	0	7
60-69 percent	3	1	3	7
70-79 percent	1	7	1	9
80-89 percent	8	8	4	20
90-100 percent	29	18	4	51
Total	**52**	**47**	**21**	**120**

[1] Data pertains to livestock permittees holding grazing permits within the EIS area. Forage on National Forest and State lands is not covered.
[2] Includes horses.
[3] Active use of BLM forage as percent of total needs during month of greatest BLM forage use.

Table 2-13 Percentage of Forage Requirements Supplied by BLM Forage by Month, by Herd Size Class, 1981 Grazing Year[1]

Month	Herd Size Class Under 400 (Percent)	400-999 (Percent)	1000+ (Percent)	Total (Percent)
March	5	12	17	14
April	67	72	47	58
May	74	76	52	63
June	72	73	38	55
July	72	69	36	53
August	69	59	34	48
September	57	49	26	39
October	42	40	16	28
November	5	13	6	8
December	3	9	6	7
January	2	7	6	6
February	1	4	6	5
Average Dependence[2]	39	40	24	32

[1] March 1981 through February 1982.
[2] Active use of BLM forage during 1981 as percent of annual forage requirements. Computed by dividing active use for a herd size group by the total forage requirements for the class (12 times the number of cattle involved), and converting to percentage terms.

Local Income and Employment Effects

Estimated livestock sales of BLM permittees in the EIS area in 1980 amounted to $23.8 million (1981 price level). Appendix H describes the basis of this estimate.

Local personal income in 1981 derived from these sales accounted for $15.7 million and 476 jobs in Malheur County. The income generated represents about eight percent of total 1980 personal income in the county. The portion of forage derived from public lands in the EIS area was responsible for about 2.4 percent of personal income in the county, or $5.6 million.

Other Land Use Activities

Hunting, fishing, camping and general recreational use on BLM lands in the EIS area generated an estimated $2.9 million in local personal income and 154 jobs in 1981 as described in Table 2-14. The personal income generated from recreational use on public land in the EIS area was responsible for 1.4 percent of total 1980 personal income in Malheur County. Mineral exploration and quarrying, and wildlife trapping provide minor amounts of local income and employment.

Payments to Malheur County derived from lands managed by BLM amounted to $847,788 in fiscal 1981 (BLM Facts, 1981). These payments are principally payments in lieu of taxes and mineral leasing fees which would not be affected by the grazing management program (BLM Facts, 1981).

Social Conditions

Social conditions that might be affected by any of the alternatives are primarily those relating to the residents and communities of Malheur County. Groups interested in these public lands include the ranching and mining industries, and conservation, wild horse, historical, archeological, hunting, fishing or other recreation-oriented groups and organizations.

The group most likely to be affected is the ranching industry. The ranchers' livelihood and style of life is tied to the land and to the ranch operation.

Table 2-14 Personal Income and Employment Related to Recreation Activity, EIS Area, 1981[1]

Activity	Personal Income	Employment[2] (Jobs)
Hunting		
Big Game	$ 240,000	12
Small Game	100,000	5
Waterfowl	13,000	1
Upland Game	210,000	10
Fishing		
Coldwater	60,000	3
Warmwater	28,000	2
Camping	280,000	18
Day Use	1,934,000	103
Total	**2,900,000**	**154**

[1] Coefficients for calculating income and employment impacts obtained from U.S. Forest Service Interindustry Model, USDA, 1982.
[2] Employment shown is not full-time-equivalent.

Chapter 3
Environmental Consequences

Introduction

This chapter describes the significant environmental consequences that would result from implementing each of the alternatives. These environmental consequences (impacts) are compared to the existing situation, as described in Chapter 2. If a resource is not affected or if the impacts are considered insignificant, no discussion is included. Analysis, including the scoping process, indicates that there would be no significant impacts upon minerals, climate, or energy consumption.

The major actions that cause impacts are (1) allocation of existing and future forage production, (2) implementation of grazing systems which include changes in period of use, and (3) implementation of range improvement projects. Because no change is expected from the existing situation on the unallotted areas (63,629 acres), these areas are not discussed further.

The following assumptions have been made as a basis for the impact analysis:

- No Impact: If resource conditions would remain the same as the existing situation, no impacts would occur.

- Short term impacts would occur within one year after construction of range improvement projects and implementation of grazing systems. Until implementation, the impacts of grazing management would be the same as under the No Action Alternative (Alternative 1).

- Long term impacts would occur fifteen years after implementation of the decision.

- Each alternative selected would be fully implemented as described in Chapter 1. The period of implementation would be ten years.

- Vegetation is the primary resource that would be directly impacted. Changes in vegetation production or composition would affect other resources.

- Grazing systems would be followed.

- Monitoring studies would be conducted as described in Appendix D, and adjustments made as needed.

- Standard procedures and design elements would be effectively carried out for construction of range improvement projects in each alternative.

- Regular maintenance would be carried out to maintain the functional capability of all range improvements.

Impacts on Vegetation

Changes in vegetative characteristics such as forage production, range condition, residual ground cover, riparian vegetation and threatened or endangered plants are dependent upon changes in plant species composition. A summary of the long-term impacts to vegetation is shown in Table 3-1.

Table 3-1 Long-Term Vegetation Impacts

Vegetative Characteristic	Existing Situation	Alt. 1 No Action	Alt. 2 Emphasize Livestock	Alt. 3 Preferred Alternative	Alt. 4 Emphasize Non-Livestock	Alt. 5 Emphasize Wild Horses
Range Condition (3,392,250 Acres Total)						
Late	20%	47%	70%	71%	70%	53%
Middle	60%	32%	10%	8%	10%	27%
Early	8%	9%	5%	7%	8%	8%
Unknown[1]	4%	4%	4%	4%	4%	4%
Seedings[2]	8%	8%	11%	10%	8%	8%
Range Trend (3,992,250 Acres Total)						
Up	16%	42%	64%	78%	77%	58%
Static	75%	46%	33%	20%	21%	40%
Down	5%	12%	3%	2%	2%	2%
Unknown	4%	0%	0%	0%	0%	0%
Total Residual Ground Cover (3,392,250 Acres Total)						
Increasing		7%	<1%	1%	27%	24%
Static		84%	12%	22%	24%	23%
Decreasing		9%	88%	77%	49%	53%
Long Term Forage Production (AUMs)[3]	462,249	462,249	546,620	532,475	501,295	501,295
Streamside Riparian Vegetation Trend[4] (Acres)						
Increasing		92	95	163	425	428
Static		2,168	2,096	2,160	2,122	2,095
Decreasing		388	457	325	101	126
Unknown		166	166	166	166	165

[1] Acreage classified as unknown includes fenced Federal range and unalloted areas.
[2] Range condition is not rated on seedings. Most seedings in the EIS area are in excellent forage condition.
[3] Forage production on Federal range only.
[4] Species composition of key woody riparian species only.

Impacts to the 10 vegetation types will not be discussed separately because the plants most affected by the alternatives are found in almost every vegetation type. Consequently, the expected changes in key species would occur in nearly every vegetation type, although in somewhat different proportions depending upon the present composition and potential of the site and the actions being proposed.

Plant Species Composition

The following analysis identifies the general changes in composition of the key species that are expected to result from the components of each alternative, i.e. forage allocations, grazing systems and range improvements. (See Table 1-1 for components by alternative.) Because significant composition changes usually take several years, the following analysis discusses only long-term impacts.

Estimates of changes in composition of key species were based upon observations by district personnel, professional judgment, analysis of present grazing systems in the EIS area and cited studies. No change from the current species composition is expected on areas managed under fenced Federal range or unallotted status.

Forage Allocation and Grazing Systems

This section discusses the effect of proposed utilization levels and grazing systems on key species composition. For the purposes of analysis, light utilization is defined as up to 40 percent, moderate utilization is defined as from 41 percent to 59 percent, and heavy utilization is defined as 60 percent and over. Generally, light and moderate utilization levels increase or sustain the vigor of key species, while heavy utilization reduces photosynthesis below levels needed to maintain root reserves, diminishing the vigor of key species (Heady 1975). However, under most grazing systems, the timing of grazing use is the most important factor affecting key species composition. For example, during the critical part of the growing season (normally May 15 to July 15, depending on elevation, shown in Table 1-3) plants are drawing on stored carbohydrates to develop flower stalks and vegetative growth. In most native key species, carbohydrate reserves are replenished during the later stages of this period prior to seedripe. The critical period of growth ends when the plant has replenished its carbohydrate reserves and has produced seed. Moderate utilization during the period of critical growth may result in reduced vigor, evidenced by fewer seedstalks, lower vegetative production and a smaller crown size, while heavy grazing during this period can completely deplete plant reserves, eventually killing the key species and allowing a corresponding increase in less palatable plants.

Impacts of grazing systems and utilization levels on key species composition are summarized in Table 3-2.

Winter Grazing System (W) - Increases in herbaceous key species are expected under this system because winter use allows plants to complete growth from start-of-growth through dormancy without interruption. Grazing would begin after the herbaceous species have become dormant and the carbohydrates have been stored in the roots, and end when these plants emerge from dormancy. Some areas proposed for winter livestock use would have yearlong use by wild horses (e.g. Barren Valley - #0801 and Sand Gap - #0802 Allotments), but no change in herbaceous key species is expected in these areas because overall utilization by horses during the critical growth period is expected to be light.

The effects of winter grazing on upland woody species are somewhat different. Because shrubs store carbohydrates in the above-ground stems, winter grazing reduces shrub carbohydrate reserves. Moderate utilization of shrubs is expected to result in the production of fewer flowers in the spring but no significant change in species composition.

The composition of key herbaceous and woody riparian vegetation would increase under winter grazing. In cool weather livestock are less inclined to seek out the forage, shade and water provided by riparian areas, thus light or no utilization in these areas would occur.

Early Spring Grazing System (EA) - Grazing occurs for one to two months prior to the start of the critical growing period under this system. Early spring grazing maximizes use of grasses that are not as palatable later in the season, such as cheatgrass (an annual) and Sandberg's bluegrass, and also utilizes the previous years growth of perennial plants. Because grazing ceases while adequate soil moisture is available, most perennial plants are able to produce seed and replenish most carbohydrate reserves. Early spring grazing would permit seedling establishment (Stoddart, Smith and Box 1975, p. 483) and an increase in key upland herbaceous species composition is expected under this system.

Table 3-2 Key Species Composition Changes Due To Implementation of Grazing Systems[1]

Grazing System[2]	Yearly Sequence of Use	Upland Key Species[3] Herbaceous		Upland Key Species[3] Woody		Riparian Key Species[4]	
		Light/ Moderate	Heavy	Light/ Moderate	Heavy[7]	Herbaceous	Woody
Winter (W)	Winter use every year	I	I	NC	NC	I	I
Spring (EA)	Early spring use every year	I	I	I	I	I	I
Spring/Summer (SS)	Use during critical growth period every year	NC	D	NC	D	D	D
Spring/Fall (SF)	EA/DF every year	I	I	NC	D	I	D
Deferred (DF)	Use after seed ripe every year	I	I	NC	D	NC	D
Deferred Rotation (DR1)	1 year SS/1 year DF	I	NC	NC	D	NC	D
Deferred Rotation (DR2)	1 year EA/1 year DF	I	I	I	NC	I	NC
Deferred Rotation (DR3)	1 year SS/1 year winter	I	I	I	I	I	I
Deferred Rotation (DR4)	1 year EA or SS/2 years DF	I	I	NC	D	NC	D
Deferred Rotation (DR5)	1 year EA/1 year SS	NC	D	I	I	NP	NP
Rest Rotation (RR1)	1 year SS/1 year DF/1 year rest	I	I	I	I	NP	NP
Rest Rotation (RR2)	1 year SS/1 year rest	I	NC	I	NC	NC	NC
Rest Rotation (RR3)	2 or 3 years SS/1 year rest	NC	D	NC	D	NC	D
Rest Rotation (RR4)	1 or 2 years early spring/1 year rest	I	I	I	I	I	I
Exclusion (EX1)[5]	No authorized use	I	I	I	I	I	I
Exclusion (EX2)[6]	Yearlong use by horses only	NC	NC	NC	NC	NC	NC

[1] Composition changes shown by symbols are: I = Increase, NC = No Change, D = Decrease, NP = None Present
[2] No changes in upland or riparian key species composition are expected to occur under the following grazing systems: Fenced Federal Range, Unavailabel and Unallotted.
[3] The primary upland woody key species is bitterbrush. Important upland herbaceous key species include bluebunch wheatgrass, Idaho fescue, and crested wheatgrass.
[4] The primary riparian woody key species are willow and wild rose. Riparian herbaceous key species include several species of meadow grasses, perennial forbs, sedges and rushes.
[5] Stagnation may occur after several years.
[6] Yearlong use by wild horses in herd management areas under Alternative 5 would prevent increases from occurring to all key species.
[7] Utilization levels are indicated for key species at the two levels shown. For analysis purposes light/moderate = 59% and less; heavy = 60% and greater. Upper use on crested wheatgrass is 65%. Utilization ranges shown represent pasture average use made on upland herbaceous key species.

Light utilization on key upland woody species is expected under early spring grazing. Consequently, a long term increase in composition of these species would occur in areas where a potential for increase exists because plant vigor and reproduction would be maintained.

Key woody and herbaceous riparian vegetation would increase in composition under this system. Better distribution of livestock because of cool weather, abundant green upland forage and more water sources would lessen use on riparian vegetation. Regrowth after grazing would occur because of adequate soil moisture in the riparian areas.

Spring/Summer Grazing System (SS) - Grazing occurs every year during the critical part of the growing season under this system. Although the proposed stocking rates are designed to achieve moderate levels of utilization on most areas, factors such as terrain, location of fences and water, and the type of vegetation found in the Southern Malheur EIS area often prevent uniform patterns of grazing. Heavy grazing inevitably would occur on some portions of an allotment and light use would occur in other areas. A decrease in native, key upland herbaceous and woody species is expected on those areas within an allotment that receive heavy utilization—primarily areas adjacent to water developments, riparian areas and flat valley bottoms. Spring/summer grazing at the Squaw Butte Experiment Station, where stocking rates were designed to achieve a moderate level of grazing use, resulted in heavy utilization of 37 percent of the range. Over an 11-year period, this produced a change in species composition toward dominance by less palatable species such as Sandberg's bluegrass (Hyder 1951). Most researchers (e.g. Hyder 1951) agree that heavy use levels under a spring/summer system result in lowered vigor and a decrease in composition of most key herbaceous and woody upland plants. Moderate grazing levels may somewhat reduce plant vigor, but the composition of most key species would be maintained.

Although this is not the most desirable system for native key species, crested wheatgrass can perpetuate itself under a slightly modified spring/summer grazing system. Research indicates that crested wheatgrass produces more photosynthetic tissue per unit volume of vegetation than bluebunch wheatgrass and can replenish root reserves much more rapidly than

native grasses (Miller 1982). Miller also found that if grazing does not take place before May 15, crested wheatgrass will store adequate root reserves to retain vigor through the grazing period. Therefore, the spring/summer system is proposed mostly for use on seeded pastures.

Decreases in key woody and herbaceous species are expected to occur in riparian areas that are accessible to livestock under spring/summer grazing. Livestock prefer green forage. Consequently, as upland herbaceous species become dry in late summer livestock begin grazing green herbaceous and woody species in accessible riparian areas, and heavy utilization generally occurs.

Spring/Fall Grazing System (SF) - The spring/fall system allows two periods of grazing every year. Livestock are removed in the spring while sufficient soil moisture is available for regrowth. Grazing in the fall commences after the herbaceous key species have become dormant in order to utilize the summer's regrowth and fall greenup. This system is primarily proposed for seedings in which the key species is crested wheatgrass. This system would promote fine stemmed, leafy growth of crested wheatgrass in two ways: by allowing the plants to produce and store carbohydrate reserves, and by preventing the accumulation of coarse stem material. Sharp (1970) demonstrated that in Idaho this system maintained stand vigor and plant density.

The spring/fall grazing sequence would result in the annual harvest of new willow shoots, inhibiting reproduction and causing a slow decrease in key woody species composition. However, herbaceous riparian key species would not be grazed during most of their critical growing period, and the composition of these species would slowly increase.

Deferred Grazing System (DF) - The deferred system allows grazing after most of the upland herbaceous key species have reached seedripe stage and replenished carbohydrate reserves. The composition of key upland herbaceous species such as Idaho fescue and bluebunch wheatgrass would increase.

Moderate utilization of upland woody species encourages growth of additional twigs and therefore increases forage production. Reproductive capacity, on the other hand, is slightly decreased over the years because increased twig growth reduces the development of flowers and fruits (Garrison 1953 Cited by Stoddart, Smith and Box 1975, p. 135), but long term composition is not expected to change. Heavy utilization levels under the deferred grazing system would greatly inhibit reproduction and decrease the composition of upland woody key species.

Livestock would concentrate in accessible riparian areas under deferred grazing because of the availability of green forage and water, and hot late summer temperatures. This concentration results in heavy utilization of riparian herbaceous and woody species. The composition of key woody riparian species would decrease under this system because grazing would occur during the majority of the critical growth period for these species, particularly willow. Herbaceous riparian species composition would not change because deferred grazing would allow sufficient plant growth to sustain root reserves.

Deferred Rotation Grazing System - Five different deferred rotation grazing systems are proposed. Under the first type of deferred rotation (DR1), one year of grazing use during the critical growing period is alternated with a year of grazing after the seeds of the key herbaceous species ripen and carbohydrate reserves have been stored. At moderate utilization levels this system would allow adequate root storage and an increase in key herbaceous species would occur. Under heavy utilization levels, root storage during the year of deferment would only be adequate to offset depletion that would occur during the year of seasonlong use, and herbaceous key species composition would not be expected to change. Woody key species composition in upland areas would not change under moderate utilization and would decrease at heavy utilization levels (refer to discussion of deferred grazing).

The composition of woody species in riparian areas would decrease under this system. Concentrations of livestock in riparian areas would result in heavy utilization of woody riparian species during their critical growth period. For herbaceous riparian species, benefits from rest periods would be offset by impacts from the periods of use, and composition would remain unchanged.

Under the second type of deferred rotation (DR2), one year of early spring grazing is followed by one year of deferred grazing. Herbaceous upland grasses would not be grazed during their critical growing season, allowing them to store reserves and increase in composition. The composition of key upland woody species would increase under moderate utilization levels (see discussion of Early Spring Grazing). At heavy grazing levels no increase in these species would occur as the benefits of early spring use are offset by the impacts of deferred grazing. No changes in woody riparian key species composition is expected under this system because only light use would occur on these species during the spring. An increase in herbaceous riparian species is expected

because use would occur prior to or following the critical growth period for these species.

Under the third type of deferred rotation (DR3), cattle graze during spring and summer the first grazing season, during winter the second grazing season, and only during March the third grazing season. The resulting two consecutive years of summer long rest would improve the vigor and increase the seed production of all plants, allowing both key upland and riparian species to increase in composition.

The fourth type of deferred rotation (DR4) alternates one year of spring or spring/summer grazing with two years of grazing after seed ripe. Two years of rest during the critical growing season would sufficiently protect plant vigor and seedling establishment to increase key upland herbaceous species composition.

Key woody upland species would decrease in composition at heavy utilization levels because two consecutive years of fall grazing would inhibit seed production in following years (see discussion of deferred grazing system). The composition of key woody riparian species would also decrease because three years out of four these areas would be heavily utilized during hot summer months, minimizing regrowth, and reducing plant vigor and reproductive success. No change in the composition of herbaceous riparian species is expected (see discussion of deferred grazing).

The fifth deferred rotation system (DR5) alternates one year of early spring grazing with a year of grazing during the critical growth period. Adequate root reserves of herbaceous plants could not be maintained at heavy utilization levels within the short growth period provided; therefore a loss of vigor and reduced seed production would cause a decrease in composition of these species. The composition of herbaceous species would be maintained at current levels in areas that receive light or moderate utilization (refer to discussion of spring summer grazing).

This grazing sequence would result in light utilization of upland woody species, allowing a gradual increase in composition. No riparian areas exist in pastures proposed for this system.

Rest Rotation Grazing System - Rest rotation grazing alternates one or more years of complete rest with other grazing treatments. The length of the rotation cycle and number of grazing treatments depend on the number of pastures in the grazing system. Four rest rotation systems are proposed.

The first type of rest rotation (RR1) is a three pasture system alternating one year of grazing during the critical growth period, one year grazing after seed ripe and one year of complete rest. Under this system, upland herbaceous key species would not be grazed during the critical part of the growing period two out of three years. This would result in improved vigor and increases in seed production and seedling establishment, which would increase key species composition. Upland woody species would receive light to moderate use during the two grazing years, which would slightly reduce seed production. However, total rest in the following year would allow for good seedling survival, so key upland woody species composition would increase over the long term. No riparian areas occur in pastures proposed for this system.

The second type of rest rotation (RR2) alternates one year of spring/summer grazing with one year of rest. Herbaceous and woody upland species would not change in composition at heavy use levels because the year of rest provides a recovery period from the year of summer long utilization. At light or moderate utilization levels these species would increase in composition. Riparian key species composition would be maintained at existing levels because the heavy utiliztion made on these plants during summer long grazing would be offset by the year of rest.

The third rest rotation system (RR3) combines two years grazing during the critical growth period with one year of rest. Grazing at heavy use levels two years out of three during the critical period would not allow adequate carbohydrate storage or seed production for all upland and riparian key species. One year of rest would not adequately compensate for these losses, therefore these species would gradually decrease. At light or moderate use levels, upland key species would be maintained. Woody key riparian species would decrease because the year of rest would not offset reproductive growth lost during two consecutive years of seasonlong grazing. However, the year of rest would allow herbaceous riparian species to restore plant vigor and maintain composition.

The fourth, and most common rest rotation system (RR4) alternates one or two years of early spring grazing with one year of rest. This system would increase the composition of all upland and riparian key species because early spring grazing allows plants to complete regrowth and replenish carbohydrate reserves. The year of rest further ensures reproductive success and seedling survival of key species.

Exclusion (EX1) - No authorized grazing is permitted in exclusion areas. Both livestock and horses would be excluded. An initial

improvement in the vigor of key species would occur because the absence of grazing during the growing season would allow plants to complete vegetative growth and reproduction. Where the potential exists, a rapid increase in riparian woody species is expected during the first 5 years of exclusion. Observations of woody streamside riparian vegetation in the Vale district and in adjoining BLM districts in eastern Oregon indicate that during the first few years of protection from grazing rapid shoot growth and establishment of seedlings occur.

Another type of exclusion (EX2), under Alternative 5 only, would remove livestock grazing from wild horse herd areas. Use by horses would be continuous over the entire year, however the proposed stocking level of horses would result in a pasture average utilization of 20 to 40 percent. Season long grazing by wild horses would somewhat reduce vigor and seed production of key upland herbaceous vegetation, however the light use level would allow these plants the opportunity to maintain vigor.

Wild horse grazing at the levels proposed would not impact riparian vegetation significantly because horses use these areas for watering but do not graze them heavily. Key riparian woody and herbaceous species composition would not change.

Range Improvements

The construction of range improvements (Appendix D, Table D-1) would cause a short term and long term disturbance of vegetation as shown in Table 3-3. In addition, a decrease in the composition of key species would occur on 5 to 10 acres around each new water development as a result of heavy utilization. The largest change in species composition would be caused by the proposed vegetation manipulation.

Vegetation manipulation (brush control and brush control with seeding) is proposed primarily in portions of the big sagebrush vegetation type where significant improvement in the range condition rating would require more than 15 years using grazing management alone. The acreage of vegetation manipulation shown in Table 1-1 represents approximately 15% of the big sagebrush type under Alternative 2, and 5 percent under Alternative 3. No vegetation manipulation is proposed under Alternatives 1, 4 and 5.

The proposed methods of brush control are burning and spraying. Burning would temporarily reduce sagebrush because sagebrush does not resprout following fire. The effect of burning on perennial bunchgrasses varies with the intensity of the fire, season of the burn and the species of grass in the burn area. The composition of Sandbergs bluegrass, bluebunch wheatgrass, cheatgrass and squirreltail, where present, would increase on areas proposed for burning. Several studies in Idaho indicate that fall burning does not harm most perennial herbaceous species (Britton 1978).

The proposed spraying of 2,4-D for brush control would temporarily reduce sagebrush in the treated areas. Increases in native bunchgrass production of more than 200 percent have been shown to occur following spraying of sagebrush with 2,4-D (Hyatt 1966). Annual forbs such as mustards would increase, while perennial forbs such as lupine and buckwheat would decrease in composition immediately following spraying, although reestablishment is expected over the long term. Mueggler and Blaisdell (1958) showed about a 30 percent increase in total (annual and perennial) forb production several years following spraying of sagebrush.

On the areas proposed for seeding, brush control by burning or spraying would be used to

Table 3-3 Acres of Disturbance Due to Proposed Range Improvements[1]

Range Improvements	Alternative 2 Emphasize Livestock (Acres)			Alternative 3 Preferred Alternative (Acres)			Alternative 4 Emphasize Non-Livestock (Acres)			Alternative 5 Emphasize Wild Horses (Acres)		
	Temp.	Perm.	Heavily Grazed	Temp.	Perm.	Heavily Grazed	Temp.	Perm.	Heavily Grazed	Temp.	Perm.	Heavily Grazed
Fences	119	0	0	123	0	0	94	0		2	–0	0
Springs	18	0	360	16	0	330	0	0	0	<1	0	5
Wells	8	4	75	2	1	20	0	0	0	0	0	0
Pipelines	243	122	1,824	51	25	380	0	0	0	0	0	0
Reservoirs	406	406	2,030	296	296	1,480	0	0	0	54	54	270
Waterholes	12	12	60	16	16	80	0	0	0	0	0	0
Brush Control/ seeding	116,779	0	0	34,695	0	0	0	0	0	0	0	0
Brush Control[2]	256,232	0	0	79,581	0	0	0	0	0	0	0	0
Total	373,817	544	2,549	114,780	338	2,290	94	0	0	56	54	275

[1] See Table 1-1 for proposed range improvements by alternative. No range improvements would be constructed under Alternative 1.
[2] The method of brush control has not been determined.

prepare the site for seeding. Crested wheatgrass along with other suitable species would be seeded on 116,779 acres under Alternative 2, and 34,695 acres under Alternative 3. Based on observations of existing seedings in the EIS area and studies of similar areas in Oregon (Findley 1974), crested wheatgrass would comprise 50 to 90 percent of the seeded area. Species composition following treatment would vary according to the success of the brush control, the survival of other species in the seed mixture and the amount of precipitation in the year following seeding.

New spring developments would cause a permanent decrease in upland key species composition on 5 to 10 acres surrounding the new water source due to heavy utilization and trampling by livestock concentrating in the area. As these springs are developed, water would be diverted to livestock water troughs and fencing would protect riparian vegetation where significant overflow occurs. Consequently, a net increase would occur over the long term in both woody and herbaceous riparian key species at springs.

Range and Forage Condition and Trend

The future range condition of the study area is dependent upon the changes in species composition described in the previous section. Expected long-term range conditions (shown in Table 3-1) are based on several assumptions derived from observations by district personnel, study data, review of pertinent literature and professional judgement. Appendix E discusses the methodologies used to predict changes in condition and trend. The assumptions used to predict future range condition include the following:

- Grazing systems and use levels that satisfy the physiological requirements of key species for growth, reproduction and carbohydrate storage (see Plant Species Composition section) would improve range condition from a middle to late condition class. Conversely, systems and use levels which do not allow plants the opportunity to make and store carbohydrates would result in the deterioration of range condition from late to middle and middle to early. Cook (1966) states that "Carbohydrate reserve exhaustion can be the primary cause of changes in range condition The more palatable species are grazed more intensively and frequently tha unpalatable plants. The carbohydrate reserves in the heavily grazed plant are gradually reduced while the less palatable species have optimum reserves." The "range condition" described in this study correlates with the definition of range condition used in this EIS.

- It is assumed that approximately 334,000 acres of early condition range would not respond to grazing management over the long term. Although some improvement of early condition range can be expected, the rate of improvement is much slower than later condition range. Studies by McLean and Tisdale (1972) and Owensby et al. (1973) showed that at least 20, and as much as 40 years of complete rest would be required for early condition range to completely recover.

- Available nutrients and soil moisture are fully utilized by the present vegetation. Consequently, any increase in the amount of key species would result in a similar but opposite change in the amount of some other species.

- Seedings would be implemented only on early range condition and would be rated as excellent forage condition 15 years after completion of the project. Brush controls would be implemented only on middle range condition and would be in late range condition after 15 years.

Forage Production

Forage production is expected to increase significantly under all alternatives. In a review of several grazing studies on western ranges, Van Poollen (1979) concluded that production increases between 5 and 21 percent were attributable to the implementation of grazing systems. In some cases, cheatgrass, an annual not considered a key species, contributes significantly to forage production. In general, key species are the preferred forage species, thus when key species increase, forage production also increases, and as key species decrease, forage production declines.

The future forage production presented in Table 3-1 was predicted using the methodology outlined in Appendix C. The future forage production of both the seeded and native range areas was based upon the present production of areas which have undergone similar treatments, such as the Lucky "7" Allotment (#1306) and several others in the EIS area.

Residual Ground Cover

The long-term estimated changes in total residual ground cover (see Glossary) shown in Table 3-1 are based on predicted changes in key species composition, livestock forage production and proposed changes in livestock allocations. As livestock forage species increase in composition, total residual ground cover may decrease, if the larger proportion of the total annual vegetation production that becomes available for livestock grazing is allocated. In the example below, the long term

range condition of a sagebrush/bunchgrass community is expected to change from middle to late due to an increase in the composition of bluebunch wheatgrass. Three aspects of the example should be noted: (1) the total annual vegetation production of the community remains constant between the existing situation and the long term while the composition varies between species; (2) the percent utilization for bluebunch wheatgrass remains constant; (3) fewer pounds of vegetation remain after grazing under the long term than the existing situation.

Species Composition By Weight	Measured Utilization	Pounds Annual Production	Pounds Annual Consumption	Pounds Remaining = After Grazing
Existing Situation (Middle)				
70 % Big Sagebrush	0 %	700	– 0	= 700
20 % Bluebunch Wheatgrass	50 %	200	– 100	= 100
10 % Annuals	0 %	100	– 0	= 100
Totals		**1000**	**– 100**	**= 900**
Long Term Situation (Late)				
55 % Big Sagebrush	0 %	550	– 0	= 550
40 % Bluebunch Wheatgrass	50 %	400	– 200	= 200
5 % Annuals	0 %	50	– 0	= 50
Totals		**1000**	**– 200**	**= 800**

The total amount of vegetation removed would be higher in the long term than under the existing situation, resulting in a decrease in residual ground cover. However, in the long term, a larger proportion of the remaining vegetation would be herbaceous perennials rather than annuals and woody perennials. Perennial species provide more year round cover than annuals because there is less year-to-year variation in production and most of the above ground plant material remains intact throughout the fall and winter. Herbaceous perennials provide a larger amount of fibrous roots in the upper soil zone and loose less moisture to evaportion than woody perennials.

Vegetation manipulations would produce short-term decreases in live vegetative cover. Over the long-term residual ground cover would not return to original levels since the stocking rates on these areas would increase. A temporary reduction of residual ground cover would occur on the areas using burning for the proposed method of brush control because persistent litter would be consumed by the fire. Seed bed preparation would result in a significant short-term (1 to 3 months) reduction in cover on areas proposed for seeding, but a long-term increase due to the higher total production of vegetation on the site. Decreases in total residual ground cover would occur on sites disturbed by the construction of range improvements and areas of heavy utilization (5 to 10 acres) around each new water development.

Riparian Vegetation

Table 3-2 shows the effect of grazing systems on riparian key species. Impacts to riparian vegetation are based on the expected change in the composition of woody species (primarily willow) and, to a lesser extent, herbaceous species (primarily sedges and rushes).

About 83 percent of the stream riparian acres (53 percent of the stream miles) in the EIS area have little or no potential to respond to changes in livestock management, either because they are inaccessible to livestock (due to dense shrub cover, steep, rocky terrain, unalloted states or existing fences) or riparian improvement potential is low (i.e. vegetation growth is limited by natural factors such as low summer flow, stream channel scour or limited soil productivity). The method for determining riparian vegetation improvement potential is described in Appendix G.

Response to grazing management would occur primarily in the streamside riparian areas that are accessible to livestock and have a medium or high riparian improvement potential. Most of these areas are currently under spring/summer, rest rotation, or deferred grazing management. Woody and herbaceous plants would increase significantly on 359 acres of streamside riparian area under Alternative 4 and 5 due to exclusion of livestock. Under Alternative 3, 163 acres of streamside riparian vegetation would gradually improve because of changes in grazing management and exclusion but 342 acres would have decreases in vegetation under the proposed grazing management. Maintenance of existing exclosures in Alternative 1 and 2 would improve 50 acres, but streamside vegetation would decrease on 388 and 457 acres, respectively, under the proposed grazing systems.

Within the EIS area 37 reservoirs and lakes have the potential to support shoreline vegetation. Of these, 23 are already fenced to exclude livestock and would remain excluded under all alternatives.

Fourteen presently unfenced reservoirs have the potential for riparian improvement. All 14 of these reservoirs (nine acres of shoreline vegetation) would remain unfenced and in poor condition under Alternatives 1 and 2. Nine of these reservoirs would be fenced under Alternative 3, allowing increases in shoreline vegetation on five acres. All 14 reservoirs would be fenced under Alternative 4 and 5, increasing shoreline vegetation on nine acres.

Under all alternatives, small areas (estimated at less than one acre each) of access to water by

livestock (water gaps) adjacent to exclusion areas would have virtually all woody vegetation removed.

The effect of spring developments on riparian vegetation at springs and seeps is discussed under range improvements in the Species Composition section.

Threatened, Endangered and Sensitive Plants

Site specific information concerning the impact of existing livestock grazing management is lacking for the 15 plant species under review for Federal listing as threatened or endangered status and the eight plants considered as sensitive by BLM (shown in Table 2-3). For example, under Alternative 3, beneficial impacts could occur to plants which are palatable to livestock and are located within the proposed exclusion areas. The removal of livestock could allow these plants to expand into adjacent suitable habitat. On the other hand, livestock exclusion could favor plants which are preferred by livestock and which may be in competition with the sensitive plants. Without information about the response to grazing on these plants, the impact of proposed changes in grazing management cannot be predicted. Adverse impacts due to vegetation manipulation and range improvement construction would be avoided by conducting intensive plant inventories of the project area and modifying the design as needed in accordance with Bureau policy (Chapter 1).

Conclusions

The analysis of impacts to vegetation as quantified in Table 3-1 leads to the following major conclusions:

- Under all alternatives, significant amounts of middle condition range would improve to late condition. Alternative 5 would result in less improvement than other alternatives because of year long grazing by wild horses in some of the pastures proposed for domestic livestock exclusion. Improved range condition in Alternatives 2 and 3 would be partially due to implementation of brush controls and improved grazing systems. The predicted improvement in range conditions under all the alternatives also reflects continuing long term benefits of the Vale Rehabilitation Project.

- Compared to the existing situation, more acres would be in upward and fewer acres would be in downward trend under all alternatives. Alternative 1 would have seven percent more acres in downward trend than the existing situation because several pastures would continue to be grazed under a spring summer system without maximum allowable utilization levels.

- Forage would increase over the long term under all alternatives except Alternative 1. Forage production is assumed to remain constant under Alternative 1 for purposes of analysis. Alternative 2 and 3 would have the largest increase due to the proposed range improvements.

- Total residual ground cover would decrease significantly under all alternatives except Alternative 1. Alternatives 2 and 3 would result in the greatest reduction in residual ground cover. Alternatives 4 and 5 would result in increases in residual ground cover on approximately 25 percent of the area.

- Although no impacts due to range improvements are expected, impacts to threatened, endangered and sensitive plants from grazing management are largely unknown.

- About 83 percent of the stream riparian acres (53 percent of stream miles) have low improvement potential. Of the stream riparian areas with medium or high improvement potential, woody and herbaceous plants would increase on 20, 21, 21, 77, and 77 percent of stream due to exclusion and grazing management under Alternative 1 through 5 respectively. Riparian vegetation would decrease on 66, 69, 58, 5 and 13 percent of these acres under Alternatives 1 through 5, respectively.

Impacts on Soils

Changes in trend of erosion on upland soils are directly correlated with changes in range condition and total residual ground cover (Table 3-1). Total residual ground cover affects replenishment of soil nutrients, reduces raindrop impact and reduces sheet erosion. Areas that have decreases in total residual ground cover would have increases in the amount of upland erosion unless the decrease in cover was offset by an increase in perennial herbaceous species. Perennial grasses have a more extensive root system to hold soil in place and provide, on the average, more persistent ground cover than annuals. Bailey and Copeland (1961 Cited by Mattison et al. 1977) found that as perennial vegetation and litter cover increased, overland flow of water and erosion decreased.

Consequently, areas with decreases in residual ground cover would experience short term increases in upland erosion under all alternatives. However, in the long term decreases in residual ground cover would offset

to varying degrees by increases in the composition of perennial species, stabilizing or decreasing erosion on 86, 68, 84, 89 and 74 percent of the area under Alternatives 1 through 5, respecitvely (see Table 3-4).

The construction of range improvements under Alternatives 2, 3, 4 and 5 would temporarily disturb the soil surface (see Table 3-3). The disturbance would subject those areas to wind and water erosion. This impact would lessen as the areas became revegetated in 1 to 2 years. No range improvements would be constructed under Alternative 1.

Livestock would concentrate around the proposed water developments. Approximately 10 acres around each reservoir, waterholes and troughs, and 5 acres around each spring would be heavily grazed (see Table 3-3). Residual ground cover would thus decrease and erosion increase. Upland erosion would also increase along some new fence lines due to trailing by livestock under Alternatives 2, 3, 4 and 5.

On areas proposed for vegetation manipulation, short term increases in wind erosion would occur on sandy soils if burning were the treatment used. In the long term, wind erosion would return to existing levels after the areas become revegetated.

Streambank erosion would be affected by changes in riparian vegetation. Increases in riparian vegetation, especially woody plants, would help stabilize streambanks and decrease erosion. Expected changes in riparian vegetation from grazing systems are shown on Table 3-2. See Table 3-4 for changes in streambank erosion by alternative. After 15 years, approximately 80 percent of the stream bank miles would be stable under Alternatives 4 and 5. Approximately 60 percent would be stable under Alternative 3. Alternatives 1 and 2 would result in approximately 50 percent of the stream miles being stable.

Impacts on Water Resources

Water Quantity

Improving the condition of stream riparian areas by restricting cattle grazing can result in a "sponge" effect that enables riparian vegetation to absorb spring runoff and release more water to streams in the summer. Winegar (1980) found that a previously intermittent stream began to flow yearlong after several years of protection from livestock grazing. Stream sections outside the exclosure continued to go dry during the summer. He attributed the additional duration of water yield to dense riparian vegetation inside the exclosure that trapped silt and built up the water table by several feet. Under Alternatives 1 and 2, the water table may be lowered in some stream sections because of soil compaction and vegetation removal by livestock. Alternatives 4 and 5, and to a lesser extent Alternative 3 would result in raised water tables and increased summer flows in Willow, Little Whitehorse, McDermitt Creeks and others.

A number of studies (Rauzi and Hanson 1966; Alderfer and Robinson 1974; Hanson et al. 1972) have shown that heavily grazed upland areas in poor condition produce more runoff than lightly and moderately grazed areas and areas in good condition. Soil compaction may increase runoff by decreasing the rate of infiltration of water into the soil. The expected improvement in range condition under all alternatives would result in a slight decrease in total runoff.

Less water would reach downstream users due to the construction of reservoirs under Alternatives 2, 3, and 5. Because each reservoir would hold approximately 2 acre-feet, the total impoundment would range from 406 acre-

Table 3-4 Soil Erosion Trend

	Erosion Trend	Alt. 1 No Action	Alt. 2 Emphasize Livestock	Alt. 3 Preferred Alternative	Alt. 4 Emphasize Non-Livestock	Alt. 5 Emphasize Wild Horses
Streambanks (375 Miles Total	Decreasing	14%	14%	15%	42%	42%
	Static[1]	45%	41%	47%	40%	38%
	Increasing	26%	30%	23%	3%	5%
	Unknown	15%	15%	15%	15%	15%
Uplands (3,992,250 Acres Total)	Decreasing	40%	7%	17%	41%	37%
	Static	46%	61%	67%	48%	37%
	Increasing	14%	32%	16%	11%	26%

[1] Includes 81 miles located in unallotted areas.

feet/year to 54 acre-feet/year under these alternatives. The total impoundment under any alternative would be less than 0.1 percent of the annual runoff from public lands in the EIS area. No reservoirs are proposed under Alternatives 1 and 4. Construction of waterholes would not affect downstream use because waterholes are built in dry lakebeds that are sinks for small internally-drained watersheds.

The amount of groundwater withdrawn from the proposed wells under any alternative would not significantly impact the groundwater reserves. Changes in runoff would not affect groundwater recharge significantly.

Water Quality

Chemical constituents are not likely to change because the chemical composition depends on the source of the water and the geological substrate. Most fecal coliform increases come from livestock use in or directly adjacent to streams (Johnson et al. 1978; Robbins 1978). Managing or excluding livestock along 113 miles of streams in riparian areas under Alternatives 3, 4 and 5 would reduce or remove livestock concentration along perennial streams and thus decrease fecal coliforms from livestock. Under Alternatives 1 and 2, fecal coliform levels would remain the same as the present situation since there would be no additional livestock exclusion.

The herbicide 2,4-D would be used under Alternatives 2 and 3. No significant impacts to water quality would be expected due to the use of buffer strips 100 feet wide on both sides of perennial streams and around other water sources. (See Appendix D, Standard Procedures and Design Elements for Range Improvements.) No herbicides would be applied under Alternatives 1, 4 and 5.

The construction of reservoirs would temporarily increase the existing sediment yield. The disturbed acres are expected to become revegetated within 1 to 2 years. After revegetation, sediment yields would return to the previous undisturbed levels or lower. Headcutting would occur below the proposed reservoirs due to the slope of the spillway and may cause localized increases in stream siltation.

Because the proposed exclosures under Alternatives 4 and 5 would improve the riparian vegetation and increase streambank stability (see Table 3-4), sediment yield would decrease along McDermitt, Willow, Whitehorse, Little Whitehorse, Indian, Cottonwood Creeks and others. See Appendix G, Table G-1 for predicted condition and trend of riparian habitat by stream and alternative. As woody riparian vegetation increases, shading of the streams would occur, resulting in lower water temperatures. Under Alternative 3 a slight decrease in sediment yield is expected in some sections of Carter, Cottonwood, Little Whitehorse and Willow Creeks and the Malheur River as a result of grazing management.

In conclusion, there would be no significant changes in water quantity under Alternatives 1 and 2. Under Alternatives 3, 4, and 5, the water table would be raised and summer flows increased where livestock are excluded from stream riparian areas. Water quality (sediment yield, water temperature, fecal coliforms) would improve under Alternatives 4 and 5, and to a lesser extent, Alternative 3, mainly along streams proposed for exclusion.

Impacts on Wildlife

Wildlife would experience both primary and secondary impacts. Primary impacts affect wildlife populations directly. Some examples of adverse primary impacts are: avoidance of livestock by big game; deer and antelope fence mortalities; nest disturbance or destruction from livestock trampling; and temporary animal displacement from prescription burning. Primary impacts are believed to be insignificant in the long term. Although individuals are lost, population trends are unaffected.

Secondary impacts affect wildlife populations indirectly by changing the vegetation or wildlife habitat and can be beneficial or adverse. Two adverse examples are loss of sagebrush cover from herbicide spraying and siltation of stream bottoms from exposed banks. Beneficial examples include increased nesting cover from improved riparian vegetation and new sources of water from water developments.

Wildlife populations in the EIS area have had only limited monitoring to determine the impact of grazing systems and range improvements. Therefore, impact analysis was based on less direct methods which focus on wildlife habitat. Some considerations in predicting impacts were:

- Condition of habitat as based on visual observation by district personnel and existing habitat inventory.

- Research applicable to the EIS area (Heady and Bartolome 1977, Thomas, 1979).

- Field observations of past impacts to wildlife populations and their habitat (Kindschy 1971).

All predicted impacts to populations are based upon anticipated habitat changes. Weather, hunting, disease and predation were assumed to be constant. Actions which increase habitat diversity were assumed to also increase the numbers and kinds of wildlife although improved habitat does not always result in immediate increases in populations. Predation or adverse weather may reduce population levels.

Threatened and Endangered Animals

None of the proposed alternatives would have an effect on peregrine falcons, bald eagles, kit fox or snowy plovers. Changes in bird and small mammal populations would not be great enough to significantly affect food for bald eagles or peregrine falcons. Active nesting or roost sites are not known in the EIS area. Changes in vegetation and resulting small mammal populations would not be great enough to affect kit fox habitat. On public lands, the lake playas used by snowy plovers receive light or no livestock use.

Wildlife Habitat in Riparian Areas

Impacts in riparian areas are significant because these areas are limited in distribution and acreage, and contain the greatest densities and varieties of species. See Figure 2-1 for location of major riparian areas. Thomas et al. (1979) estimated that of the 363 terrestrial species known to occur in southeastern Oregon, 288 are either directly dependent on riparian areas or utilize them more than other habitats.

Impact predictions were made by comparing the proposed grazing systems and existing conditions with the riparian habitat improvement potential at each riparian area (see Table 3-5, and Appendix G, Table G-1). Tables 3-6 and 3-7 summarize long term conditions and trends for wildlife habitat at streams, lakes, and reservoirs. Impact predictions from the vegetation section (Table 3-2) were used to predict wildlife habitat trend. For example, an increase in key riparian woody species would result in an upward wildlife habitat trend.

Livestock exclusion would improve riparian habitat to good or excellent condition where livestock grazing has been identified as the

Table 3-5 Proposed Grazing Management in Streamside Riparian Habitat

Grazing System[1]	Alt. 1 No Action		Alt. 2 Emphasize Livestock		Alt. 3 Preferred Alternative		Alt. 4 Emphasize Non-Livestock		Alt. 5 Emphasize Wild Horses	
	Acres	Miles	Acres	Miles	Acres	Miles	Acres	Miles	Acres	Miles
Exclusion	74	31	74	31	142	34	448	159	452	161
Rest Rotation 2	92	28	33	14	17	6	26	9	0	0
Rest Rotation 3	78	24	78	24	9	3	9	3	26	9
Rest Rotation 4	59	25	14	12	14	12	14	12	14	12
Deferred	138	51	138	51	130	50	0	0	0	0
Deferred Rotation 1	145	46	290	83	119	39	119	39	118	39
Deferred Rotation 2	73	3	91	8	231	56	167	28	164	27
Deferred Rotation 3	0	0	4	1	4	1	4	1	4	1
Deferred Rotation 4	69	22	51	18	62	21	62	21	62	21
Winter	29	10	29	10	9	3	9	3	9	3
Spring	92	34	55	24	55	24	9	3	9	3
Spring/Summer	93	17	86	16	151	43	76	14	85	16
Spring/Fall	1	1	0	0	0	0	0	0	0	0
Fenced Federal Range	17	4	17	4	17	4	17	4	17	4
Unallotted	1,854	79	1,854	79	1,854	79	1,854	79	1,854	79
Totals	2,814	375	2,814	375	2,814	375	2,814	375	2,814	375

[1] Rest Rotation 1 - 1 year Spring-Summer, 1 year deferred, 1 year rest.
Rest Rotation 2 - 1 year spring-Summer, 1 year rest
Rest Rotation 3 - 2 years Spring-Summer
Rest Rotation 4 - 1 or 2 years Spring-Summer, 2 years rest
Deferred - 1 month grazing in September.
Deferred Rotation 1
Deferred Rotation 2
Deferred Rotation 3
Deferred Rotation 4

Table 3-6 Expected Long-Term Condition and Trend of Wildlife Habitat in Streamside Riparian Areas

Condition	Existing Situation Acres	Existing Situation Miles	Alt. 1 No Action Acres	Alt. 1 No Action Miles	Alt. 2 Emphasize Livestock Acres	Alt. 2 Emphasize Livestock Miles	Alt. 3 Preferred Alternative Acres	Alt. 3 Preferred Alternative Miles	Alt. 4 Emphasize Non-Lvst. Acres	Alt. 4 Emphasize Non-Lvst. Miles	Alt. 5 Emphasize Wild Horses Acres	Alt. 5 Emphasize Wild Horses Miles
Excellent	20	7	72	37	63	36	143	42	372	137	372	137
Good[1]	2118	173	1939	131	1953	133	1948	131	1958	125	1959	126
Fair[2]	499	125	406	82	311	68	272	76	217	48	191	38
Poor	61	15	231	70	321	83	285	71	101	10	126	19
Unknown	166	55	166	55	166	55	166	55	166	55	166	55
Total	2814	375	2814	375	2814	375	2814	375	2814	375	2814	375
Trend												
Up	—		92	51	95	52	163	55	425	157	428	159
Static[3]	—		2168	171	2096	156	2160	179	2122	152	2094	142
Down	—		388	98	457	112	325	86	101	11	126	19
Unknown	—		166	55	166	55	166	55	166	55	166	55
Total			2814	375	2814	375	2814	375	2814	375	2814	375

[1] Includes 1,840 acres and 78 miles located in unalloted areas.
[2] Includes 15 acres and 3 miles located in unalloted areas.
[3] Includes 1,854 acres and 81 miles located in unalloted areas.

Table 3-7 Expected Long-Term Wildlife Habitat Trend at Lakes and Reservoirs[1]

(Public Acres)

Condition	Alt. 1 No Action	Alt. 2 Emphasize Livestock	Alt. 3 Preferred Alternative	Alt. 4 Emphasize Non-Livestock	Alt. 5 Emphasize Wild Horses
Excellent	13	11	13	13	13
Good[2]	77	77	82	82	82
Fair	0	1	0	2	8
Poor	53	54	48	46	40
Unknown	13	13	13	13	13
Total	156	156	156	156	156
Trend					
Up	86	82	92	102	109
Static[2]	12	14	13	12	5
Down	49	51	42	40	40
Unknown	9	9	9	2	2
Total	156	156	156	156	156

[1] These areas are listed in Appendix G, Table G-2.
[2] Includes five acres located in unalloted areas.

limiting factor for riparian habitat. Most of the improvement would occur during the first 5 to 10 years. Successful streambank fencing projects have been documented in Oregon (Winegar 1977), Utah (Duff 1978) and Nevada (Crispin 1981). Livestock exclusion along sections of Little Whitehorse and Willow Creeks in the EIS area (see Vale District Office photo studies) allowed both woody and herbaceous plants to increase, resulting in increased habitat diversity. Similar riparian areas that would improve significantly under Alternatives 3, 4, and 5 are McDermitt and Whitehorse Creeks, sections of Little Whitehorse and Willow Creeks and others. Decreases in riparian plant species would result in poor wildlife habitat where watergaps in fences are constructed.

Other than exclusion, grazing systems that increase key riparian plant species composition (Table 3-2) would improve riparian habitat for wildlife at a very slow rate. Grazing systems that decrease key riparian plant species would further deteriorate streamside riparian wildlife habitat on 325 acres under Alternative 3, and 388 and 457 acres, respectively, under Alternatives 1 and 2.

Development of springs would initially destroy some wildlife habitat in riparian areas at each spring site. About 0.25 acre at each site would be affected. Where fencing of significant overflows is proposed, lost habitat would be replaced in the long term. A small percentage of the proposed reservoirs would maintain a water level constant enough to allow the establishment of riparian vegetation.

Fish

The analysis of impacts to fish habitat is based on expected impacts to riparian vegetation, water quality, streambank stability and erosion in uplands. See Figure 2-2 for location of major fish habitat.

Generally, grazing systems that would increase or decrease riparian vegetation would also improve or deteriorate fish habitat (see Vegetation, Table 3-2). Increased amounts of riparian vegetation reduce water temperatures, reduce silt, increase summer flows, and increase populations of insects. Dense riparian vegetation stabilizes the streambanks and provides hiding places for fish. The size and number of pools can be increased by beaver dams, provided abundant woody vegetation is available.

Quantitative impact predictions were made by comparing existing fish habitat conditions and improvement potential with grazing systems proposed for each alternative on 253 miles of stream identified as fish habitat.

Long term trends and predicted habitat conditions of fishery streams appear Appendix G, Table G-3 and are summarized in Table 3-8. Alternatives 1 and 2 would have significant adverse long and short term impacts on important native trout habitats in McDermitt, Whitehorse, Little Whitehorse and Willow Creeks and others. Under these alternatives the removal of vegetation and continued bank

Table 3-8 Expected Long Term Condition and Trend of Stream Fisheries Habitat (Miles)

Condition	Existing Condition	Alt. 1 No Action	Alt. 2 Emphasize Livestock	Alt. 3 Preferred Alternative	Alt. 4 Emphasize Non-Livestock	Alt. 5 Emphasize Wild Horses
Excellent	0	11	11	11	59	60
Good[1]	41	26	27	36	50	48
Fair[2]	186	155	151	150	127	127
Poor[3]	26	61	64	56	17	18
Total	253	253	253	253	253	253
Trend						
Up		19	25	25	83	83
Static[4]		174	161	174	165	165
Down		60	67	54	5	5
Total		253	253	253	253	253

[1] Includes 3 miles located in unalloted areas.
[2] Includes 76 miles located in unalloted areas.
[3] Includes 2 miles located in unalloted areas.
[4] Includes 81 miles located in unalloted areas.

sloughing would result in downward trend on 60 miles and 67 miles of trout habitat, respectively. Proposed exclusions would improve 83 miles of trout habitat under Alternatives 4 and 5, particularly in McDermitt, Whitehorse, Cottonwood, Little Whitehorse and Willow Creeks. Grazing management and proposed exclusions would improve 25 miles under Alternative 3, but 54 miles of trout habitat would deteriorate.

Water-Associated Birds

Water-associated birds are adversely affected by livestock grazing around lakes and reservoirs (Figure 2-1). Trampling causes nest disturbance and loss of cover that can reduce nesting success. Food plants such as smartweed, sedge and aquatic vegetation are often grazed before they can be utilized by birds.

Water associated birds are most concentrated at Cow and Batch Lakes. These natural lakes are surrounded by lava rock and are inaccessible or receive only light use by livestock.

Of 47 lakes and reservoirs used by waterfowl, twenty-three reservoirs are currently excluded from livestock grazing.

These 23 reservoirs would remain protected under Alternatives 1 and 2. Nine additional reservoirs would be excluded under Alternative 3. Fourteen additional reservoirs would be excluded under Alternatives 4 and 5. Excluded reservoirs would develop valuable riparian wildlife habtat, submerged aquatic vegetation, and provide approximately two additional acres of wildlife and waterfowl habitat at each site.

Mule Deer and Antelope

Future trend of big game winter range was predicted by considering changes in grazing systems, seasons of use and range improvements for each allotment and/or pasture.

The availability of herbaceous plants in big game winter ranges does not differ significantly among the alternatives. The availability of browse shrubs in big game winter ranges would be least under Alternative 2, about the same under Alternatives 1, 3 and 4, and greatest under Alternative 5. In localized areas where winter forage availability is identified as a limiting factor populations could increase due to increased winter forage availability. However, increased forage availability would not significantly impact overall big game populations because existing forage is sufficient to sustain current and projected herd levels in the EIS area.

Table 3-9 summarizes the amount of mule deer and antelope range which would be affected by vegetation manipulations. Seedings and brush controls proposed under Alternatives 2 and 3 would cause localized decreases in hiding and thermal cover for deer. Deer prefer brushland habitat rather than monotypic grasslands, which typically result from vegetation mainpulations. The total amount of decrease in brushland habitat is not expected to impact deer populations significantly because the acreages proposed represent a small percent of the EIS area.

Conversely, proposed brush controls and seedings in habitat peripheral to occupied antelope range would increase habitat used by antelope. Antelope prefer areas of low vegetative structure that are created by brush removal. Past research indicates that antelope populations can be expected to increase as a result of vegetation manipulation (Yoakum, 1980). In the short term, brush removal by burning would be more beneficial to antelope than herbicide use, because forbs, an important food source, would be temporarily reduced by herbicides. Additionally, herbicide use does not immediately change habitat structure due to the persistence of dead brush.

New water sources would reduce forage competition with livestock near existing waters and increase big game distribution. Fences, which will be built primarily on upland sites, are not expected to have a significant impact

Table 3-9 Acres of Big Game Habitat Affected by Vegetation Manipulation[1]

Predicted Change	Alt. 2 Emphasize Livestock	Alt. 3 Preferred Alternative
Improved	43,522	8,570
Deteriorated	243,612	75,328
No Change	90,412	30,378
Total	377,546	114,276

[1] No vegetation manipulation is proposed under Alternatives 1, 4 and 5

Other Mammals, Upland Game Birds, Other Birds, Amphibians and Reptiles

These animals are grouped to avoid repetition. Impacts are described in general terms and cover very broad areas; detailed analysis is not possible because site specific or species specific impacts from existing or proposed livestock management are largely unknown and because their habitat requirements are so diverse. Livestock grazing affects these species primarily through changes in condition of riparian habitat, amount of dried herbaceous vegetation in upland areas (residual ground cover) and plant species composition. Riparian areas in good condition support more kinds and numbers of wildlife than areas in poor condition (see Riparian Habitat Section). Residual ground cover that persists through winter and spring, which would vary as a result of proposed utilization levels, is very important for nesting, escape from predators and maintenance of body temperatures. Long term changes in plant species composition (see Vegetation section) would improve habitat for some species and have adverse impacts on others. See Table 3-10 for summary of impacts to small animal population.

Livestock exclusion and certain grazing systems that significantly increase woody riparian key species (Table 3-2) would provide improved winter cover, nesting cover and food for wildlife. Increased shrub and tree growth in riparian areas would allow birds to nest in previously unoccupied areas. Species such as valley quail, spotted frog and beaver, which are strongly associated with riparian areas, would be greatly benefited. Sage grouse, which do not require dense riparian vegetation, would benefit only slightly. Studies at Camp Creek (200 miles northwest of the EIS area) have shown more kinds and total numbers of wildlife in protected riparian habitat as compared to adjacent grazed riparian habitat (Winegar 1977).

Grazing systems that increase upland herbaceous key species composition would improve nesting cover for ground nesters such as horned larks. Rested pastures in rest rotation systems would have the greatest amount of dried herbaceous vegetation for thermal cover and nesting. Grazing treatments during the following 1 or 2 years after rest would result in decreased cover. Spring/summer grazing would provide the least amount of residual vegetation for wildlife because of the long duration of grazing.

Proposed range improvements by alternative are summarized in Table 1-1. Vegetation manipulation has immediate and often adverse impacts because of dramatic changes in plant species composition. Removal of sagebrush through herbicide spraying or burning would have a severe adverse impact on species which are dependent on sagebrush for food and cover (e.g., sage grouse, black-tailed jackrabbit). Decreased sagebrush would be adverse to brush-nesters such as sage sparrows and mammals such as the pygmy rabbit (Olterman and Verts 1972). Loss of thermal cover would be adverse to reptiles such as horned lizards and leopard lizards (Storm 1966). Grassland species such as horned larks and ground squirrels would increase along with predators such as badgers and raptors. Besides killing sagebrush, 2,4-D would also temporarily reduce perennial forbs which are an important wildlife food source.

Increased "edge" from sagebrush control would increase numbers of certain species around the perimeter of sagebrush control areas (e.g., jackrabbits). Animals with small areas of use, however, would not occur in the interior of treatment areas (e.g., sagebrush lizard, voles, mice, etc.). Untreated or leave patches would not entirely offset losses of sagebrush habitat for species dependent upon sagebrush.

Table 3-10 Impacts To Wildlife Populations

	Alt. 1 No Action	Alt. 2 Emphasize Livestock	Alt. 3 Preferred Alternative	Alt. 4 Emphasize Non-Livestock	Alt. 5 Emphasize Wild Horses
Mule Deer	NC	NC	NC	NC	NC
Antelope	NC	+L	+L	NC	NC
Small mammals	NC	−M	−L	+L	+L
Upland game birds	NC	−L	+L	+L	+L
Other birds	NC	−M	+L	+L	+L
Reptiles	NC	−M	−L	+L	+L
Amphibians	NC	−L	+L	+L	+L

Note: NC = no change, + = beneficial, − = adverse, L = low, M = medium, H = high

Sagebrush control and subsequent seeding increases populations of a few species and greatly reduced most others. Species diversity or the number of kinds of animals always decreases when sagebrush is converted to grass. Thomas (1979) lists 110 species as primary users of tall sagebrush habitat and only 15 for crested wheatgrass. Reynolds and Trost (1978) found that crested wheatgrass plantings, regardless of livestock use, supported fewer nesting bird species and a lower density of birds, mammals and reptiles than did areas dominated by sagebrush. Nesting birds were reduced to a single species, the horned lark. Similar impacts can be expected in the EIS area. Seedings may be beneficial to curlews which have been observed in existing seedings in the Vale District. Seedings which have forbs and shrubs in addition to crested wheatgrass would have greater habitat diversity than a seeding composed primarily of crested wheatgrass. Adverse impacts would be less severe. Crested wheatgrass, due to its ability to produce new growth in the fall, can provide nutritious forage for wintering herbivores during snow-free periods.

In the short term, burning would moderately reduce populations of small animals. Some animals would be killed during the fire; others would be displaced to areas where they could not compete with the existing populations. In the long term, burning would benefit wildlife by creating a significant amount of edges. More herbaceous food would be available adjacent.

Proposed wells, springs and pipelines would increase wildlife distribution because ground level water would be available. Occasional drownings of small birds and mammals would occur in troughs despite escape ramps. Increased sources of water provided by new reservoirs would increase distribution and numbers of species such as the mountain cottontail, Brewer's blackbird and spadefoot toad.

Conclusion

The analysis of impacts to wildlife as summarized in Table 3-10 leads to the following major conclusions.

- Small mammals, birds and fish which are dependent on riparian areas would increase as key riparian plant species composition increases. Conversely, decrease in populations can be expected as key plant species decrease. Riparian-dependent species would increase most under Alternatives 4 and 5, and to lesser extent under Alternative 3, primarily due to proposed exclusions. These species would decrease under Alternatives 1 and 2.

- Fish numbers would increase as riparian habitat improves. Under Alternatives 1 and 2, existing exclosures would continue to improve about 13 miles of trout habitat and about 60 miles (Alternative 1) and 67 miles (Alternative 2) of trout habitat would deteriorate. Livestock exclusion in Alternatives 4 and 5 would greatly improve 83 miles of fisheries habitat, primarily in McDermitt, Willow and Little Whitehorse Creeks. Under Alternative 3, 12 miles of fisheries habitat would gradually improve because of grazing systems that enhance riparian vegetation, while 13 mile would rapidly improve because of exclusion and 54 miles would deteriorate. None of the proposed alternatives would change fish size or numbers in any of the lakes or reservoirs.

- Additional livestock exclusions under Alternative 3, 4 and 5 would increase bird production slightly. No change in water-associated bird production would occur under Alternatives 1 and 2 because most of the lake and reservoirs used by these birds are presently excluded or are inaccessible to livestock.

- No significant change in deer populations is expected as a result of implementing any of the proposed alternatives. All the alternatives provide sufficient browse, forage and cover to meet ODFW herd population objectives.

- Antelope would increase under Alternatives 2 and 3 due to proposed brush controls, seedings and water developments. Brush control would convert dense stands of big sagebrush to low growing herbaceous vegetation preferred by antelope. Alternatives 1, 4 and 5 would maintain existing populations.

- Sage grouse would decrease under Alternative 2 and 3 because of brush control adjacent to key habitat areas.

- Vegetation manipulation would reduce small animal populations on 15 percent (Alternative 2) and 5 percent (Alternative 3) of the big sagebrush vegetation type. Bird, mammal and amphibian populations would increase at riparian areas excluded from livestock grazing under Alternatives 3, 4 and 5. Under Alternatives 2 and 3 decreases in residual ground cover would decrease available cover resulting in lessened population of small animals. Conversely, Alternatives 4 and 5 would allow increased accumulations of herbaceous litter with resultant increases of small birds, mammals and reptiles.

Impacts to Wild Horses

Each alternative includes a forage allocation for the maximum planned number of horses shown in Table 3-11. Horses would be periodically removed to maintain planned numbers under all alternatives. The numbers shown for the Coyote Lakes HMA are only for those horses that use the Vale District portion of the HMA (part of the Coyote Lake herd uses public lands in the Burns District).

The construction and maintenance of range improvements under Alternatives 2, 3 and 5 would temporarily disturb the wild horses with increased activity and noise. Several of the 22 reservoirs and eight spring developments proposed under Alternatives 2 and 3 would be available to horses yearlong and thus open up areas of forage previously unavailable to horses due to lack of water. Twenty-eight water developments would provide additional water in herd areas under Alternative 5. No additional fences are proposed in the herd areas under any of the alternatives. No range improvements would be constructed in the herd management areas under Alternatives 1 and 4.

Horse populations would be reduced from 1982 management levels by 34%, 19%, and 56% under Alternatives 2, 3 and 4 respectively. Wild horses would be eliminated from three herd areas where they now occur under Alternatives 2 and 3, and from four herd areas where they now occur under Alternative 4. Size of the herd management areas for the Three Fingers and Jackies Butte Herd Areas would be reduced under Alternatives 2, 3 and 4. Under Alternative 5, wild horses would remain in all nine herd areas where they now occur, and would be reintroduced into four additional herd areas. Population levels would be approximately 170 percent greater than the 1982 management levels. No change from the 1982 management levels would occur under Alternative 1.

Impacts on Recreation

Under Alternatives 3, 4 and 5 additional fencing would impede access for some recreationists (e.g. Little Whitehorse Creek, Willow Creek, and McDermitt Creek drainage). The result would be an annoyance to recreationists, causing slight localized reductions or relocations of visitor use for activities such as fishing and hunting. Although fencing would impede access, fishery habitat would improve under Alternatives 3, 4 and 5, resulting in long term improvements in fishing opportunities. Additional water developments under Alternatives 2, 3 and 5 would attract wildlife and enhance localized hunting and sightseeing opportunities. Unimproved trails and tracks created during project construction would result in improved access for dispersed recreation. On the other hand these trails and tracks would create adverse impacts to those recreationists who perceive them as degrading to natural and pristine rangeland conditions. Alternative 1 would result in no impacts because no new range improvements are proposed.

Big game and upland game hunting access could be impeded in areas identified for additional fencing in Alternatives 2, 3, 4 and 5. Long-term increases in antelope populations

Table 3-11 Forage Allocation to Wild Horses[1]

Herd Management Area	1982 Existing		Alt. 1 No Action[2]		Alt. 2 Emphasize Livestock		Alt. 3 Preferred Alternative		Alt. 4 Emphasize Non-Livestock		Alt. 5 Emphasize Wild Horses	
	Numbers	AUMs	Min/Max	AUMs	Min/Max	AUMs	Min/Max	AUMs	Min/Max	AUMs	Min/Max	AUMs
Basque	38	456	19-37	444	0	0	0	0	0	0	51-101	1208
Three Fingers	220	2640	90-150	1800	75-150	1800	75-150	1800	0	0	170-340	4085
Cold Springs	167	2004	80-130	1560	75-150	1800	75-150	1800	0	0	98-196	2347
Cottonwood Creek	64	768	38-70	840	0	0	0	0	0	0	60-120	1446
Jackies Butte	215	2580	75-150	1800	75-150	1800	75-150	1800	75-150	1800	315-630	7560
Sand Springs	260	3120	130-260	3120	75-150	1800	100-200	2400	75-150	1800	475-954	11460
Coyote Lake[3]	162	1944	81-162	1944	75-150	1800	125-250	3000	75-150	1800	270-540	6480
Sheepshead	385	4620	193-385	4620	75-150	1800	100-200	2400	75-150	1800	170-340	4080
Potholes	20	240	15-21	252	0	0	0	0	0	0	42-83	1000
Atturbury	0	0	0	0	0	0	0	0	0	0	24-48	573
Cottonwood Basin	0	0	0	0	0	0	0	0	0	0	27-53	631
Morger	0	0	0	0	0	0	0	0	0	0	79-158	1890
Stockade	0	0	0	0	0	0	0	0	0	0	52-103	1233
Totals	**1531**	**18372**	**751-1365**	**16380**	**450-900**	**10800**	**550-1100**	**13200**	**300-600**	**7200**	**1833-3666**	**43993**

[1] No introduction of unrelated brook stock would occur in wild horse areas under Alternatives 2, 3 and 4. Therefore, the minimum viable herd size is 75 animals. Introduction of unrelated brood stock is assumed under Alternatives 1 and 5, to provide an adeqaute gene pool to insure a vigorous herd.

[2] Alternative 1 herd levels at the 1982 management levels. Potholes, Basque, Three Fingers, Cold Springs, Cottonwood Creek and Jackies Butte herd levels are based on the 1975 Management Framework Plans. Alternative 1 levels for other herds are based on 1982 herd levels.

[3] Vale District horses only.

under Alternative 2, and 3 could lead to slight corresponding increases in hunter use.

Projected visitor use to 1990 would not be significantly impacted under any alternative. Localized visitor use reductions would be offset by localized increases in visitor use. Due to increasing recreation demand on public lands, projected use for public lands in the Southern Malheur EIS area would increase about 10 percent over existing levels (see Table 2-9) for a total of approximately 484,800 visitor days in 1990.

Impacts on Visual Resources

No significant impacts to visual resources would result due to vegetation allocation or grazing systems.

Each type of range improvement was examined to determine the degree of contrast it would create within the typical landscapes of the EIS area. Changes in the characteristic landscape (see Glossary) caused by range improvements vary in their potential to create contrast. Some improvements and vegetation manipulation projects would add visually acceptable variety in an otherwise monotonous landscape. Table 3-12 identifies the range improvements under the Alternatives 2, 3, 4 and 5 which have the potential to create impacts in areas with high scenic quality and sensitivity. Alternative 2 has the greatest potential to create impacts. Alternative 1 would create no impacts because there would be no new construction of range improvements.

Project design features, as well as VRM program procedures and constraints, would mitigate landform and vegetative contrast under all alternatives.

Impacts on Wilderness Values

All rangeland management activities in designated Wilderness Study Areas (see Glossary) would be consistent with the Interim Management Policy and Guidelines for Lands under Wilderness Review (USDI, BLM 1979). Generally, these guidelines state that changes in forage allocation, grazing systems or range

Table 3-12 Potential Impacts to Areas with High Scenic Quality and Visual Sensitivity Due to Range Improvements[1]

	Alternative 2 Emphasize Livestock	Alternative 3 Preferred Alternative	
Area	**Project**	**Project**	**Allotment #**
Owyhee Reservoir	Pipeline (0.75 miles) Spring Development (5) Fencing (4 miles) Brush Control 320 acres) Seeding (50 acres)	Fencing (7 miles) Spring Developments (5)	0500, 0400
Leslie Gulch	Spring Developments (2) Brush Control (200 acres) Reservoirs (1) Stock Driveway (1 mile)	Spring Developments (2)	0500
Succor Creek	Brush Control (1,500 acres)	Fencing (2 miles) Brush Control (400 acres)	0500
Honeycombs	Brush Control (600 acres)		0500
Owyhee River	Spring Developments (1) Fencing (3.5 miles)	Spring Developments (1) Fencing (3.5 miles)	0907, 1401
Louse Canyon	Brush Control (700 acres) Fencing (1.0 miles) Reservoirs (1)	Fencing (1.0 miles) Reservoirs (1)	1306, 1402
Fifteen-Mile	Brush Control (2,880 acres) Spring Developments (1)	Spring Developments (1)	1201

[1] No range improvements would be constructed under Alternative 1.

improvements may be implemented as long as such changes would not impair an area's wilderness suitability. New permanent range improvements must also enhance wilderness values by better protecting the rangeland in a natural condition.

Table 3-13 identifies the proposed rangeland improvements in WSAs under Alternatives 2 and 3. Improvements that comply with interim management policy guidelines could be constructed prior to a final decision regarding wilderness designation. Improvements (e.g., vegetative manipulations) not in compliance with policy guidelines would be delayed pending a decision regarding an area's wilderness degignation and would only be implemented if the areas were not designated wilderness. Site specific environmental assessments will identify which improvements listed in Table 3-13 have the potential to impair an area's suitability for wilderness designation.

Impacts on Special Areas

Under Alternatives 4 and 5 and to a lesser extent, Alternative 3, habitat for the Whitehorse cutthroat trout would be enhanced within the Whitehorse Basin ACEC. Grazing under all alternatives would not impact any other identified special areas. No vegetation manipulations are proposed within potential RNAs or ACECs.

Impacts on Cultural Resources

In accordance with the National Historic Preservation Act of 1966, as amended, Executive Order 11593 and Bureau policy, appropriate measures would be taken to identify and protect cultural sites prior to ground disturbing activities (see Appendix D, Standard Procedures and Design Elements for Range Improvements). Therefore, adverse impacts would be mitigated on known cultural sites.

Table 3-13 Proposed Improvements Within WSAs

	Alternative 2 Emphasize Livestock	Alternative 3 Preferred Alternative	
WSA	**Project**	**Project**	**Allotment(s)**
Cottonwood Creek	0	0	0301
Red Butte	0	0	0400
Honeycombs	Springs Developments (2)	Spring Developments (2)	0500
Sperry Creek	Spring Developments (3)	Spring Developments (3)	0305
Gold Creek	Reservoirs (2)	Reservoirs (2)	0301
Dry Creek	Brush Control (1,500 acres) Seedings (1,920 acres) Spring Developments (1) Fencing (3 miles)	Spring Developments (2) Fencing (2 miles)	0400
Dry Creek Buttes	Fencing (6 miles) Reservoirs (2) Brush Control (800 acres)	Reservoirs (2)	0400
Wild Horse Basin	0	0	0500
Cedar Mountain	Reservoirs (4) Fencing (3.5 miles) Brush Control (8,320 acres)	Reservoirs (4)	0303
Owyhee Breaks	0	0	0400
Blue Canyon	Spring Developments (4) Brush Control (60 acres) Seedings (180 acres)	Spring Developments (4)	0500
Slocum Creek	Spring Developments (2) Stock Driveway (2 miles)	Spring Developments (2)	0500

WSA	Alternative 2 Emphasize Livestock Project	Alternative 3 Preferred Alternative Project	Allotment(s)
Upper Leslie Gulch	0	0	0500
Sheepshead (Vale District)	Brush Control (6,530 acres) Reservoirs (2)	Reservoirs (2) Brush Control (6,530 acres)	0701
Wildcat Canyon	Reservoirs (5) Spring Development (1) Brush Control (700 acres) Pipeline (2 miles)	Reservoirs (5) Spring Development (1) Brush Control (700 acres)	0701
Alvord Desert	Well (1)	Well (1)	0801, 0802
Jordan Craters	Pipeline (0.5 miles)	0	0901, 0902 0505, Unallotted
Lower Owyhee Canyon	Spring Developments (1) Reservoirs (2) Fencing (3 miles)	Spring Developments (1) Reservoirs (2) Fencing (1 Mile)	0303, 0406, 0801, 0901, 0902, 0907 0904, Unallotted
Owyhee Canyonlands	Reservoirs (9) Fencing (13 miles) Brush Control (6,900 acres) Brush Control Seedings (6,000 acres) Spring Development (1)	Reservoirs (8) Fencing (10.5 miles) Spring Development (1) Brush Control (3,100 acres)	1307, 1306, 1401, 1101, 1004, 1102, 1005, 1008, 1001, 1402
Upper West Little Owyhee	0	0	1306, 1307 1402
Bowden Hills	Reservoirs (1) Pipelines (1.5 Miles)	Reservoir (1)	0801, 1201
Saddle Butte	Wells (2) Spring Develop ments (2)	Spring Developments (2)	0801
Clarks Butte	Brush Control (6,450 Acres) Well (1) Pipeline (4 Miles) Reservoir (1)	Reservoir (1) Brush Control (6,450 Acres)	0902, Unalloted
Palomino Hills	Reservoirs (9) Wells (2) Fencing (13 miles)	Reservoirs (9)	0701, 0801
Willow Creek	Brush Control/ Seeding (2,700 acres)	0	1201, 1204
Disaster Peak	Fencing (1.5 miles)	0	1201, 1203, 1204
Fifteen Mile Creek	Reservoir (1) Spring Developments (2) Brush Control (7,900 acres) Fencing (6 Miles)	Reservoir (1) Spring Developments (2) Brush Control (1,300 acres) Fencing (6 Miles)	1201, 1202
Twelve Mile Creek	Spring Development (1) Fencing (5.5 Miles) Brush Control/Seeding (500 acres) Brush Control (3,300 acres)	Spring Development (1) Fencing (1.5 miles) Brush Control/Seeding (500 acres Brush Control (2,250 acres)	1201
Oregon Canyon	Reservoir (1) Spring Development (1) Development (1) Brush Control (200 acres) Fencing (8 miles) Pipeline (1 mile)	Reservoir (1) Fencing (2)	1201, 1202

Impacts on Socioeconomic Conditions

Introduction

The economic impacts of the alternatives are expressed in terms of the effects on dependence on public forage, ranch property values, and local income and employment from grazing and the construction of range improvements. No significant impacts related to hunting and fishing and other recreational activity have been identified. Social impacts not primarily economic in nature are discussed as appropriate.

Effect on Dependence on Public Forage

In determining the effect on dependence, active (paid) use in 1981 was subtracted from future allocations in each allotment. For analysis purposes, the initial allocations were divided among the permittees in proportion to 1981 active preference. Also for analysis purposes, it is assumed that long term increases in forage production would be allocated to livestock, but the effects of these forage increases on individual operators or on herd size classes have not been analyzed because the criteria for dividing long term allocation among permittees have not been determined.

Table 3-14 shows how annual forage requirements of individual permittees would be affected in the short term by the alternatives. The table shows the number of operators in each herd size class, classified by whether they would have a loss, no change or a gain in public forage (forage from BLM-administered lands) in terms of their annual forage requirements. Also shown in the table is the average change in public forage as a percent of annual requirements.

In the short term, a loss of forage greater than 10 percent of annual requirements would be experienced by one permittee under Alternatives 1, 2 and 3, 18 permittees under Alternative 4, and 41 permittees under Alternative 5. There would be a gain in forage greater that 10 percent in the short term for three permittees under Alternative 1, 43 under Alternative 2, 38 under Alternative 3, 22 under Alternative 4, and 12 under Alternative 5.

Table 3-14 Number of Permittees Affected in Short Term by Change in Public Forage

(Change from 1981 active use)

Change in forage as percent of annual requirements	Herd Size Group			All	Herd Size Group			All	Herd Size Group			All
	Under 400	400-999	1000+	Permittees	Under 400	400-999	1000+	Permittees	Under 400	400-999	1000+	Permittees
	Alternative 1				Alternative 2				Alternative 3			
Loss over −30.0%	—	—	—	—	—	—	—	—	—	—	—	—
−10.0 to −29.9%	1	—	—	1	1	—	—	1	1	—	—	1
Loss under −10%	12	14	1	27	12	7	1	20	20	17	5	42
No change	32	28	11	71	2	1	1	4	2	2	1	5
Gain to 0.9%	4	2	1	7	10	8	2	20	8	3	2	13
+ 1.0 to 9.9%	3	2	7	12	10	11	12	33	6	7	9	22
+10.0 to 19.9%	1	1	—	2	9	7	2	18	9	6	2	17
+20.0 to 29.9%	—	—	1	1	5	3	1	9	6	4	1	11
+30.0 to 49.9%	—	—	—	—	3	4	1	8	1	5	—	6
+50.0% or more	—	—	—	—	1	6	1	8	—	3	1	4
Average change (%)	−<1	−<1	+2	+<1	+9	+17	+12	+13	+6	+13	+9	+10
	Alternative 4				Alternative 5			
Loss over −30.0%	—	—	—	—	1	2	—	3
−10.0 to −29.9%	12	4	2	18	21	16	4	41
Loss under −10%	20	21	10	51	16	15	12	43
No change	1	—	0	1	1	—	—	1
Gain to 0.9%	1	2	3	6	1	2	2	5
+ 1.0 to 9.9%	12	7	4	23	9	5	2	16
+10.0 to 19.9%	4	4	1	9	3	2	—	5
+20.0 to 29.9%	3	5	—	8	1	4	—	5
+30.0 to 49.9%	—	4	—	4	—	1	—	1
+50.0% or more	—	—	1	1	—	—	1	1
Average change (%)	−<1	+5	+4	+3	−8	−3	+<1	−2

In the long term, changes in public forage as a percentage of the annual forage requirements of permittees' existing herds would amount to the following:

Alternative 1	+<1 percent (difference between 1981 use and active preference)
Alternative 2	+23 percent
Alternative 3	+18 percent
Alternative 4	+7 percent
Alternative 5	+0 percent

The seasonal distribution of public forage use is not expected to change significantly from current patterns.

Effect on Ranch Property Values

The effect on ranch values as collateral for loans or in the sale of the enterprise has been calculated by valuing public forage licenses at $45 per AUM. As shown in Table 3-15, 20 permittees would have the value of their property reduced in the short term by the loss of public forage in Alternative 2. Fourty-six permittees under Alternative 3, 66 permittees under Alternative 4, and 82 permittees under Alternative 5 would be similarly affected. There would be a short term gain in ranch value for 99 permittees under Alternative 2, 74 under Alternative 3, 55 under Alternative 4 and 39 under Alternative 5. No changes in ranch valuation would occur under Alternative 1.

The effect on ranch values in total for each alternative would be as follows:

Alternative	Short Term	Long Term
Alternative 2	+5,540,000	+9,600,000
Alternative 3	+4,010,000	+7,520,000
Alternative 4	+1,130,000	+2,530,000
Alternative 5	−1,277,000	+ 975,000

Effects of Changes in Public Forage Use on Income and Employment

The effects of the alternatives on personal income and employment in the livestock industry and in the community as a whole are shown in Table 3-16. The changes in local personal income and jobs were estimated from changes in sales, which were assumed to vary proportionately with changes in AUMs. These changes may be overestimated if the permittees in the EIS area are not able to utilize the forage on public lands during the period it is offered.

In the short term under Alternative 5, local income and employment attributable to public forage use would be reduced. Under Alternatives 1, 2, 3 and 4 income and employment would be increased assuming that all active grazing preferences were utilized.

In the long term, increased public forage would generate four more local jobs under Alternative 1, 104 more jobs under Alternative 2, 81 more jobs under Alternative 3, 27 more jobs under Alternative 4 and 14 more jobs under Alternative 5.

Table 3-15 Number of Permittees with Short Term Loss or Gain in Ranch Value[1]

	Herd Size Group			All	Herd Size Group			All
	Under 400	400-999	1000+	Permittees	Under 400	400-999	1000+	Permittees
	Alternative 2				Alternative 3			
Permittees with Losses	11	6	3	20	20	17	9	46
Total Losses ($000)	−18	−28	−170	−216	−70	−150	−300	−520
Permittees with Gains	40	41	18	99	32	30	12	74
Total Gains ($000)	+610	+2740	+2410	+5760	+390	+2240	+1900	+4530
Net Dollar Gain or Loss ($000)	+590	+2710	+2240	+5540	+320	+2090	+1600	+4010
	Alternative 4				Alternative 5			
Permittees with Losses	30	22	14	66	37	28	17	82
Total Losses ($000)	−260	−500	−740	−1500	−587	−1141	−1176	−2904
Permittees with Gains	23	25	7	55	16	19	4	39
Total Gains ($000)	+230	+1300	+1100	+2630	+131	+709	+787	+1627
Net Dollar Gain or Loss ($000)	−30	+800	+360	+1130	−456	−432	−389	−1277

[1] Losses calculated on assumed value of $45 per AUM active preference. No changes in ranch value would occur under Alternative 1.

Table 3-16 Effects on Personal Income and Employment Due to Changes in Public Forage[1]

Action	Livestock Industry		Malheur County	
	Personal Income ($000)	Employment	Personal Income ($000)	Employment
		SHORT TERM		
Alternative 1	$+ 30	+<1	$+ 120	+ 4
Alternative 2	+ 480	+ 15	+ 2100	+ 3
Alternative 3	+ 360	+ 11	+ 1570	+ 47
Alternative 4	+ 120	+ 4	+ 516	+ 16
Alternative 5	− 78	− 2	− 339	− 10
		LONG TERM		
Alternative 1	$ 30	<1	$ 120	4
Alternative 2	+ 790	+ 4	+ 3430	+ 104
Alternative 3	+ 620	+ 19	+ 2700	+ 81
Alternative 4	+ 210	+ 6	+ 900	+ 27
Alternative 5	+ 108	+ 3	+ 466	+ 14

[1] Income in thousands of dollars, 1981 prices. Effects of changes in forage (from active use in 1981) estimated by factors shown in Appendix Table H-1. Employment shown is not full-time-equivalent.

Range Improvements

Table 3-17 shows the effects of implementing range improvements on local incomes and employment under Alternatives 2, 3, 4 and 5.

Conclusion

- Under Alternatives 1, 2, 3 and 4 personal income in Malheur County would increase over the short term. Alternative 5 would result in a short term decrease in personal income. Long term increases in personal income would occur under all alternatives. Total effects of personal income in Malheur County is shown on Table 3-18.

- Employment would decrease under Alternative 5 during the short term. Long term increases in employment would occur under all alternatives. Total effects on employment in Malheur County is shown on Table 3-18.

- A short term net gain in ranch valuation would occur under Alternatives 2, 3 and 4. A short term net loss would occur under Alternative 5. Long term net gains in ranch valuation would occur under Alternatives 2, 3, 4 and 5. No changes in ranch valuation would occur under Alternative 1.

Table 3-17 Short Term Effects of Range Improvements on Personal Income and Employment[1]

	Construction Costs of Improvements ($000)	Personal Income ($000)	Employment (# Jobs)
Alternative 2	6,904	4,724	255
Alternative 3	2,542	1,739	94
Alternative 4	376	257	14
Alternative 5	648	443	24

[1] Thousands of dollars, 1981 average prices. Income and employment estimated by factors for construction industry derived from inter-industry models as applied to estimated costs of improvements (see Appendix H, Table H-1). Represents total amount generated over the whole construction period.
[2] Alternative 1 would not involve construction activity.

Table 3-18 Total Effects on Personal Income and Employment in Malheur County

(Short term/long term changes in thousands of 1981 dollars)

	Impacts Due to Changes In Public Forage		Impacts Due to Construction of Range Improvements[1]		Total Impacts	
	Personal Income ($000)	Employment (# Jobs)	Personal Income ($000)	Employment (# Jobs)	Personal Income ($000)	Employment (# Jobs)
Existing Situation[2]	31,200	940	12,900	380	44,100	1,320
Alternative 1	+ 120/ + 120	+ 4/ + 4	NA	NA	+ 120/ + 120	+ 4/ + 4
Alternative 2	+ 2100/ + 3430	+ 63/ + 104	+ 945/NA	+ 51/NA	+ 3045/ + 3430	+ 114/ + 104
Alternative 3	+ 1570/ + 2700	+ 47/ + 81	+ 348/NA	+ 19/NA	+ 1918/ + 2700	+ 66/ + 81
Alternative 4	+ 516/ + 900	+ 16/ + 27	+ 51/NA	+ 31/NA	+ 567/ + 900	+ 19/ + 27
Alternative 5	− 339/ − 466	− 10/ + 14	+ 89/NA	+ 5/NA	− 250/ + 466	− 5/ + 14

[1] Total personal income from construction is assumed to occur over a five year period. No long term impacts due to construction are expected. No construction of range improvements would occur under Alternative 1.

[2] Total direct, indirect and induced local personal income and employment (jobs) for Malheur County attributable to livestock grazing and construction.

LIST OF PREPARERS

While individuals have primary responsibility for preparing sections of an EIS, the document is an interdisciplinary team effort. In addition, internal review of the document occurs throughout preparation. Specialists at the District and State Office levels of the Bureau both review the analysis and supply information. Contributions by individual preparers may be subject to revision by other BLM specialists and by management during the internal review process.

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List of Agencies, Organizations and Persons to Whom Copies of the Statement are Sent (in addition to approximately 150 individuals and other organizations):

Federal Agencies

Advisory Council on Historic Preservation
Department of Agriculture
- Forest Service
- Soil Conservation Service

Department of Defense
- U.S. Army Corps of Engineers

Department of the Interior
- Fish and Wildlife Service
- Geological Survey
- National Park Service
- Bureau of Mines
- Bureau of Reclamation

Environmental Protection Agency

State and Local Government

Malheur County Planning Commission
IDA-ORE Regional Planning and Development Association
Oregon State Clearinghouse
Oregon State Historic Preservation Officer

Interest Groups

All Grazing Permittees in the Southern Malheur EIS Area
American Fisheries Society
American Horse Protection Association
Central Oregon Conservationists
Defenders of Wildlife
Desert Trails Association
Natural Resources Defense Council
Malheur County Cattlemen's Association
National Wildlife Federation
Oregon Cattlemen's Association
Oregon Environmental Council
Oregon Natural Resources Council
Oregon Natural Heritage Program
Oregon State University, Dept. of Range Management
Oregon Sheepgrowers
Oregon Wilderness Coalition
Owyhee Conservationists
Public Lands Council
Sierra Club
Society for Range Management
Southern Oregon Resource Alliance (SORA)
The Wilderness Society
Wild Horse Organized Assistance
Wildlife Management Institute
Wildlife Society, Oregon Chapter

Approximately 150 other individuals and organizations.

Copies of this draft environmental impact statement will be available for public inspection at the following BLM offices:

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Appendices

A Summary and Results of EIS Scoping

B Determination of Forage Production and Allocations
Table B-1, Initial and Long Term Forage Allocations

C Pasture-Specific Data
Table C-1 Proposed Grazing Systems, Existing Condition and Proposed Utilization Levels by Pasture

D Standard Procedures and Design Elements for the Construction of Range Improvements
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E Determination of Existing and Predicted Range and Forage Condition and Trend

F Scientific Names of Plants Mentioned in the EIS

G Riparian Habitat Methodologies
Table G-1, Streamside Riparian Habitat - Predicted Condition and Trend
Table G-2, Wildlife Habitat at Lakes and Reservoirs - Predicted Condition and Trend
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H Estimates of Gross Sales, Personal Income, and Employment
Table H-1, Economic Effects per Unit of Physical Measure
Table H-2, Personal Income Generated per AUM for Beef Production, Malheur County 1976-1981

Appendix A

Summary and Results of EIS Scoping

Public meetings for scoping the Southern Malheur Grazing Management Environmental Impact Statement (EIS) were combined with meetings to discuss the development of the preferred alternative for the Southern and Northern Resource Areas' Management Framework Plans (MFP). The MFPs at that stage consisted of four land use allocation alternatives that had been developed from criteria established with earlier public input. The four alternatives called for various allocations of forage, different amounts of protection for riparian areas and various proposals for range investments.

The MFP Alternatives were discussed in five public meetings in McDermitt, Nevada; Boise, Idaho; and Vale, Jordan Valley and Portland, Oregon, during late September and early October, 1982. Oral and written comments were used in developing the alternatives to be analyzed in the Southern Malheur EIS. These comments led to the development of the preferred alternative and four other alternatives:

- Alternative 1, No Action (continue existing level of livestock grazing) This alternative is required by law.
- Alternative 2, Emphasize Livestock Grazing
- Alternative 3, Preferred Alternative
- Alternative 4, Emphasize Non-Livestock Grazing Values
- Alternative 5, Emphasize Wild Horses

The comments received during scoping focused on four main issues: riparian area management, wild horses, forage allocation and range investments.

On the issue of riparian area management, representatives of environmental groups favored complete protection of existing and potential riparian vegetation. Representatives of the ranching industry generally opposed the use of fences to achieve riparian area objectives due to the interruption fences may cause to livestock movement. The Emphasize Non-Livestock alternative provides for maximum protection of riparian vegetation having potential for improvement, while the Emphasize Livestock alternative would maintain riparian protection at the existing level.

Both environmental groups and ranchers objected to any level of wild horses higher than the minimum viable herd level. One wild horse organization advocated the level proposed in that planning alternative that provided for the highest horse populations (under Alternative C). A separate alternative which maximizes horse numbers within the grazing capacity and water capacity of the existing herd management areas is analyzed in the EIS. This alternative assumes horses will be managed for herd improvement, unlike the other alternatives.

The allocation of forage to wildlife received several comments. Some felt that using ODFW objectives did not provide enough for all species of wildlife and requested that additional allocations to non-game species be inlcuded.

The Preferred Alternative, Emphasize Non-Livestock and Emphasize Wild Horse alternatives would each leave a different amount of forage on the ground after grazing in the form of a "non-consumptive" use. The impact of this allocation on both game and non-game wildlife is analyzed in the EIS. The impact of increased wildlife numbers on private hay fields was discussed by several ranchers.

Several questions concerning the proposed range investments arose during the scoping period. Ranchers generally preferred to see the maximum amount of range investments analyzed in the EIS. Some environmental groups and others requested that only cost-effective proposals be included. Some questioned the need for any investments at all. The Emphasize Livestock alternative presents the level of range improvements shown in Alternative A, the preferred alternative requires the benefit-cost ratio of any allotment proposal to be higher than one, the Non-Livestock alternative includes only projects designed to enhance natural values (such as riparian area protection fences), and the No Action Alternative has no proposed investments.

Public comments concerning the analysis in the EIS of a "No Grazing" alternative was divided. Some commenters stated that no grazing should be analyzed in the EIS. Others felt that a No Grazing Alternative represented such an unrealistic extreme that it would be unproductive to analyze in the EIS. The No Grazing Alternative was eliminated from detailed study because it has entirely different goals from any of the land use alternatives and at earlier steps in the planning process no EIS area-wide livestock grazing conflicts were identified by either the public or by Bureau specialists.

The Preferred, Emphasize Non-Livestock and Emphasize Wild Horses alternatives address identified site-specific conflicts between livestock grazing and other values and includes an analysis of no grazing on selected areas.

No other alternative was considered that is not analyzed in the EIS.

Appendix B

Determination of Forage Production and Vegetation Allocation

Determination of Present Forage Production

Forage production for the EIS area was calculated from monitoring data (actual use, utilization, trend and climate) from the past three to five years. AUMs of actual use were adjusted to a normal production year and proposed utilization levels. An example of the calculations for a typical pasture is: (30% field utilization) × (1.243 crop year index) = 37% adjusted utilization. (40% proper use) divided by 37% × 822 AUMs actual use = 889 AUMs forage production.

Proposed utilization levels for each pasture were determined by range condition, trend and type of grazing system. For example, a pasture in fair condition with downward trend and season long grazing would have a proper utilization level of 40%. A pasture in middle condition in upward trend with deferred grazing would have a proper utilization level of 60%. The maximum proposed utilization level varies according to the limits prescribed under each EIS alternative.

Production from unusable and unsuitable range is not included in present forage production. Production from private and state lands were also eliminated from the determination of forage production.

Determination of Initial Allocations

The existing livestock forage production is proposed for allocation among livestock, wildlife, wild horses and nonconsumptive uses. Proposed allocations were designed to be consistent with the objectives of each EIS alternative.

Wild horse forage allocations are based on population objectives which vary by Herd Management Area (HMA) and by EIS alternative. The proposed allocation would satisfy the forage requirement of the planned maximum number of horses occupying the HMA. The area of use most preferred by horses is also used by livestock. The proposed allocations show the amount of competitive forage which would be used by livestock, horses, or any combination of livestock and horses.

Oregon Department of Fish and Wildlife (ODFW) supplied big game numbers and seasons of use to develop the wildlife allocation. Only competitive livestock AUMs were formally allocated to big game. Thus, only a portion of the big game's total diet is formally allocated. A competitive AUM is forage composed of palatable shrubs, grasses and forbs eaten by both livestock and wildlife. The portion of total big game forage which is competitive is based on the dietary overlap or percentage of competition by deer or antelope. Dietary overlap is calculated for antelope and deer by pasture for the season of game use, i.e., spring, summer, fall, winter or yearlong.

Big game unit months were converted to AUMs using the following conversion ratios:

5.3 Deer Unit Months	= 1 AUM
7 Antelope Unit Months	= 1 AUM

Big game was allocated forage in proportion to the percent of public land in the allotment and the area of use. A mathematical equation illustrates the method used to derive wildlife AUMs.

$$\text{Deer Nos.} \times \text{Months Use} \times \frac{1\ \text{AUM}}{5.3} \times \%\ \text{BLM} \times \%\ \text{Dietary Overlap} = \text{Wildlife AUM Allocation}$$

The same formula with the 7:1 AUM conversion factors was used for antelope.

Nonconsumptive allocations are made in order to quantify the amount of livestock forage which could be consumed in areas which are proposed for livestock exclusion.

Determination of Future Forage Production

The analysis of predicted changes in grazing capacity is based on the expected change in key species composition and vegetative production. These changes would occur as a result of changes in livestock distribution provided by water developments, timing and intensity of livestock grazing, and the conversion of shrub plant communities to perennial bunchgrass plant communities.

In Allotment 1304 for example, the implementation of a deferred grazing system on approximately 12,843 acres and the construction of 4 water developments would result in improved livestock distribution and periodic rest for the key forage species. Forage production is predicted to increase, accounting for an estimated increase of 253 AUMs. Brush control on 533 acres and seeding on 2,279 acres is predicted to add 179 AUMs of forage production. Fifteen years following implementation, the

forage production of the allotment is thus expected to increase by an estimated 432 AUMs. Added to the current production of 1,554 AUMs, the future forage production of the allotment would be approximately 1,986 AUMs.

Determination of Long-Term Allocations

The long-term allocation is for analysis purposes only. The actual allocation would occur only after evaluation determines that the forage is available and would depend upon the multiple use objectives of future resource management plans.

Table B-1 Forage Allocations (AUMs)

Allot. Number	Allot. Name	Federal Acres	Alt. 1 No Action ST/LTLV	WH	NC	WL	Alt. 2 Emphasize Lvstk. STLV	LTLV	WH	NC	WL	Alt. 3 Preferred Alt. STLV	LTLV	WH	NC	WL	Alt. 4 Emphasize Non Lvstk. STLV	LTLV	WH	NC	WL	Alt. 5 Emphasize Wild Horses STLV	LTLV	WH	NC	WL
0300	Skull Springs	278,465	27,332	2,844	0	639	29,779	33,138	1,800	7	639	27,379	30,738	1,800	2,407	639	21,984	25,343	0	9,602	639	15,779	19,138	6,205	9,602	639
0303	Turnbull Lake	81,403	6,964	0	0	45	8,688	10,850	0	0	45	8,005	8,973	0	683	45	6,419	6,897	0	2,269	45	6,419	6,897	0	2,269	45
0304	Black Butte	50,091	5,779	252	0	176	7,919	8,670	0	0	176	7,319	7,979	0	600	176	5,982	6,220	0	1,937	176	4,982	5,220	1,000	1,937	176
0305	Bridge Creek	13,531	1,178	0	0	102	1,610	2,271	0	0	102	1,609	2,238	0	1	102	1,609	1,698	0	1	102	1,609	1,698	0	1	102
0306	Jonesboro	19,936	2,661	0	0	153	2,932	3,691	0	0	153	2,748	3,397	0	184	153	2,222	2,381	0	710	153	2,222	2,381	0	710	153
0307	Boney Basin	17,002	2,963	0	0	144	3,012	3,082	0	0	144	2,487	2,537	0	525	144	1,955	1,955	0	1,057	144	1,955	1,955	0	1,057	144
0400	Harper Basin	427,338	38,910	0	0	644	37,710	39,072	0	1	644	34,213	35,575	0	3,498	644	27,024	28,386	0	10,687	644	27,024	28,386	0	10,687	644
0407	Little Valley	13,916	774	0	0	23	1,315	1,434	0	0	23	1,243	1,276	0	72	23	1,099	1,132	0	216	23	1,099	1,132	0	216	23
0408	Mitchell Butte	2,545	152	0	0	17	55	67	0	1	17	55	67	0	1	17	55	67	0	1	17	55	67	0	1	17
0410	Radar Hill	5,126	686	0	0	11	737	737	0	0	11	680	680	0	57	11	566	566	0	171	11	566	566	0	171	11
0412	Chalk Butte	261	60	0	0	7	53	53	0	0	7	53	53	0	0	7	53	53	0	0	7	53	53	0	0	7
0500	Mahogany	327,129	34,848	1,800	0	786	35,069	36,472	1,800	40	786	32,260	33,663	1,800	2,849	786	28,595	29,998	0	8,314	786	24,510	25,913	4,085	8,314	786
0501	Blackjack	14,232	1,050	0	0	71	1,103	1,390	0	10	71	1,103	1,390	0	10	71	869	1,036	0	244	71	869	1,036	0	244	71
0502	Derrick	844	244	0	0	11	233	233	0	0	11	233	233	0	0	11	233	233	0	0	11	233	233	0	0	11
0506	Birch Creek	2,751	191	0	0	19	170	200	0	0	19	170	200	0	0	19	170	200	0	0	19	170	200	0	0	19
0601	Dowell	47,742	2,450	0	0	36	2,751	2,751	0	0	36	2,751	2,751	0	0	36	2,751	2,751	0	0	36	2,751	2,751	0	0	36
0602	Horseshoe T	42,537	4,025	0	0	123	3,906	3,906	0	0	123	3,906	3,906	0	0	123	3,906	3,906	0	0	123	3,906	3,906	0	0	123
0603	McEwen	60,656	5,254	0	0	129	7,638	10,137	0	0	129	7,193	9,601	0	445	129	6,036	7,994	0	1,602	129	4,803	6,761	1,233	1,602	129
0604	Morger	61,783	2,100	0	0	62	1,965	1,965	0	0	62	1,965	1,965	0	0	62	1,965	1,965	0	0	62	75	75	1,890	0	62
0605	Venator	21,604	2,309	0	0	96	2,463	2,463	0	0	96	2,463	2,463	0	0	96	2,463	2,463	0	0	96	2,463	2,463	0	0	96
0701	Sheepheads	78,682	3,000	2,587	0	72	4,238	7,419	1,008	4	72	3,902	6,057	1,344	4	72	3,174	4,509	1,008	1,068	72	0	0	2,285	2,965	72
0801	Barren Valley Common	442,894	10,237	6,611	0	124	31,006	41,213	3,942	8	124	29,049	38,863	5,706	201	124	23,838	32,900	3,942	7,176	124	3,484	18,727	18,115	13,357	124
0802	Sand Gap	40,012	1,119	486	0	4	2,385	2,385	450	0	4	2,085	2,085	750	0	4	2,385	2,385	450	0	4	0	0	1,620	1,215	4
0901	Lodge	17,404	3,150	0	0	4	3,066	4,229	0	0	4	3,066	4,229	0	0	4	2,720	3,883	0	346	4	2,720	3,883	0	346	4
0902	West Cow Creek	139,885	9,738	0	0	116	17,273	23,232	0	17	116	16,294	21,713	0	996	116	12,758	14,311	0	4,532	116	12,758	14,311	0	4,532	116
0903	East Cow Creek	44,379	6,444	0	0	42	9,328	10,640	0	3	42	8,366	9,606	0	965	42	7,024	7,607	0	2,307	42	7,024	7,607	0	2,307	42
0904	Bogus Creek	4,498	250	0	0	0	250	300	0	0	0	250	250	0	0	0	250	250	0	0	0	250	250	0	0	0
0905	Oliver	6,897	560	0	0	12	504	2,216	0	0	12	504	1,216	0	0	12	504	1,041	0	0	12	504	1,041	0	0	12
0907	Morcum	5,566	150	0	0	0	150	150	0	0	0	150	150	0	0	0	150	150	0	0	0	150	150	0	0	0
1001	Arock	67,997	9,519	0	0	108	16,436	18,362	0	22	108	14,898	16,605	0	1,560	108	12,548	12,670	0	3,910	108	12,548	12,670	0	3,910	108
1002	Antelope	52,465	10,671	0	0	58	10,699	13,429	0	1,387	58	10,128	12,439	0	1,958	58	8,822	10,823	0	3,264	58	8,822	10,823	0	3,264	58
1003	Wroten	16,218	2,636	0	0	0	4,130	4,556	0	0	0	3,987	4,272	0	143	0	3,515	3,750	0	615	0	3,515	3,750	0	615	0
1004	Willow Creek	74,901	10,521	0	0	103	14,866	18,029	0	2	103	13,986	16,414	0	882	103	11,728	12,601	0	3,140	103	11,728	12,601	0	3,140	103
1005	Raburn	6,254	1,040	0	0	0	1,401	1,715	0	0	0	1,383	1,697	0	18	0	1,114	1,378	0	287	0	1,114	1,378	0	287	0
1006	Eiguren Individual	3,266	301	0	0	0	367	367	0	0	0	367	367	0	0	0	367	367	0	0	0	367	367	0	0	0
1007	Arelgold	1,864	194	0	0	0	194	194	0	0	0	194	194	0	0	0	194	194	0	0	0	194	194	0	0	0
1101	Jackies Butte	212,161	14,334	1,800	0	76	28,764	35,585	1,800	45	76	24,884	31,223	1,800	3,925	76	20,469	21,753	1,800	8,340	76	7,581	15,993	7,560	15,468	76
1102	Ambrose Maher	4,002	580	0	0	32	580	580	0	0	32	580	580	0	0	32	580	580	0	0	32	580	580	0	0	32
1103	Jackies Butte	19,522	485	0	0	34	1,425	2,165	0	0	34	1,182	1,922	0	243	34	939	939	0	486	34	939	939	0	486	34
1201	Fifteen Mile Common	331,400	25,713	0	0	392	26,374	37,434	0	224	392	25,308	35,528	0	1,290	392	21,829	23,844	0	4,769	392	21,829	23,844	0	14,769	392
1202	McCormick	53,808	8,694	0	0	60	5,260	8,023	0	2	60	5,107	7,608	0	155	60	3,611	4,697	0	1,651	60	3,611	4,697	0	1,651	60
1203	Zimmerman	30,474	5,208	0	0	95	5,468	5,982	0	1	95	5,295	5,809	0	174	95	4,922	5,046	0	547	95	4,922	5,046	0	547	95
1204	Willow Creek	83,442	5,030	0	0	122	5,378	8,448	0	51	122	5,183	7,008	0	246	122	4,782	5,409	0	647	122	4,844	4,502	0	585	122
1301	Gilbert	52,781	4,277	0	0	109	9,187	9,690	0	2	109	8,316	8,719	0	873	109	6,774	7,157	0	2,415	109	6,774	7,157	0	2,415	109
1302	Echave	16,762	1,500	0	0	9	4,057	4,852	0	0	9	3,573	4,368	0	484	9	3,088	3,783	0	969	9	3,088	3,783	0	969	9
1303	Sherburn	44,026	3,613	0	0	34	9,309	9,668	0	0	34	8,110	8,190	0	1,199	34	6,641	6,641	0	2,668	34	6,641	6,641	0	2,668	34
1304	Albisu-Alcorta	12,843	994	0	0	33	1,417	3,346	0	0	33	1,299	1,562	0	118	33	1,091	1,214	0	326	33	1,091	1,214	0	326	33
1305	Eiguren	64,443	5,500	0	0	20	8,891	11,163	0	4	20	8,683	10,895	0	212	20	7,243	9,115	0	1,652	20	7,243	9,115	0	11,652	20
1306	Campbell	157,037	14,364	0	0	40	42,539	45,512	0	6	40	7,443	40,316	0	5,102	40	29,957	32,680	0	12,588	40	29,957	32,680	0	2,588	40
1307	Louse Canyon Common	127,785	11,135	0	0	104	17,140	19,943	0	77	104	16,755	17,816	0	462	104	15,167	16,118	0	2,050	104	15,167	16,118	0	2,050	42
1308	Ten Mile SDG	3,477	0	0	0	0	711	711	0	7	0	657	657	0	61	0	547	547	0	171	0	547	547	0	171	0
1401	Anderson	39,404	2,964	0	0	73	5,430	5,616	0	22	73	5,429	5,464	0	23	73	4,329	4,329	0	1,123	73	4,329	4,329	0	1,123	73
1402	Star Valley Common	183,180	6,495	0	0	126	6,773	7,739	0	54	126	6,773	7,739	0	54	126	6,644	6,791	0	183	126	6,644	6,791	0	183	126
	TOTALS	3,992,250[1]	320,346	16,380	0	5,296	437,731	527,474	10,800	2,394	5,296	404,463	481,246	13,200	30,463	5,296	345,659	384,705	7,200	104,094	5,296	292,369	331,415	43,993	120,591	5,296

[1] Includes approximately 64,000 acres with grazing use presently unalloted.

Key

ST/LTLV - Short Term and Long Term Livestock
STLV - Short Term Livestock
LTLV - Long Term Livestock
WH - Wild Horses (Initial and Long Term)
WL - Wildlife (Initial and Long Term)
NC - Nonconsumptive (Initial and Long Term)

Appendix C - Table C-1, Pasture Specific Data
Proposed Grazing Systems, Maximum Allowable Utilization, Predicted Long-term Condition and Trend

Allot No.	Past No.	Pasture Name	Existing		Alternative 1			Alternative 2				Alternative 3				Alternative 4				Alternative 5			
			Condition	Trend	Grazing System	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend
0300	101	N Racehorse	M	U	RR4	L	U	DR1	60	M	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	102	S Racehorse	M	S	EA	L	U	DR1	60	M	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	103	Simmons Gulch	L	S	RR4	L	U	DR1	50	L	U	DR2	50	L	U	DR2	40	L	U	DR2	40	L	U
	104	Squaw Cr Sdg	F	U	DR1	G	U	DR1	65	F	S	DR1	60	F	S	DR1	50	G	U	DR1	50	G	U
	105	Shearing Plant	E	S	DR1	E	S	DR1	40	E	U	DR2	40	E	U	DR2	40	E	U	DR2	40	E	U
	106	Lake Ridge	L	S	RR2	L	S	DR1	40	L	U	DR2	40	L	U	EX0	40	L	U	EX0	40	L	U
	107	Rufino Butte	L	S	DR1	L	S	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	108	Red Butte	M	S	DR1	M	S	DR1	60	M	S	DR1	50	L	U	DR1	40	L	U	EX2	40	M	S
	109	No Butte Cr	M	D	DR4	L	U	DR1	60	M	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	110	Middle Butte Cr	M	S	DR4	L	U	DR1	60	M	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	111	So Butte Cr	L	U	DR4	L	U	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	112	FFR	?	?	SS	?	D	DR1	N/A	?	S	DR1	N/A	?	S	DR1	N/A	?	S	DR1	N/A	?	S
	113	Windy Res Ex	?	?	DR1	?	S	DR1	60	?	S	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	114	Cherry Cr Res Ex	?	?	DR1	?	S	DR1	60	?	S	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	115	Tim Peak Res Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	116	Hannah Res Ex	?	?	DR1	?	S	DR1	60	?	S	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	117	Squaw Cr Res Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	118	Box Canyon	?	?	RR2	?	S	DR1	60	?	S	DR1	50	?	U	DR1	40	?	U	DR1	40	?	U
	201	Basque	M	S	RR2	M	S	DR1	40	L	U	DR2	40	L	U	DR2	40	L	U	EX2	40	M	S
	202	Slaughter Gulch	L	S	RR2	L	S	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	203	Cottonwood Basin	L	D	RR2	L	S	DR1	50	L	U	DR2	50	L	U	DR2	40	L	U	EX2	40	L	S
	204	Arrien FFR	?	?	SS	?	D	DR1	N/A	?	S	DR1	N/A	?	S	DR1	N/A	?	S	DR1	N/A	?	S
	205	Mosquito Sdg	G	U	RR2	G	S	DR1	65	G	S	DR1	60	G	S	DR1	50	X	U	DR1	50	X	U
	207	Granite Cr	M	S	RR4	L	U	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	208	Canyon	?	?	W0	?	U	W0	50	?	U	DR1	50	?	U	DR1	40	?	U	DR1	40	?	U
	209	Horse Queen	M	S	DR1	M	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	210	Atturbury	M	D	RR2	M	S	DR1	40	L	U	DR1	40	L	U	DR1	40	L	U	EX2	40	M	S
	211	Monument	L	S	DF	L	U	DF	60	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	212	Chapman	M	S	DR1	M	S	DR1	40	L	U	DR1	40	L	U	DR1	40	L	U	DR1	40	L	U
	213	Road Canyon	M	S	DR1	M	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	214	Wildcat Coldspring	M	S	RR2	M	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	EX2	40	M	S
	215	FFR	?	?	SS	?	D	DR1	N/A	?	S	DR1	N/A	?	S	DR1	N/A	?	S	DR1	N/A	?	S
	216	Granite Cr Res	?	?	DR1	?	S	DR1	60	?	S	DR1	50	?	U	EX0	0	?	U	EX0	0	?	U
	217	Chapman Res	?	?	RR4	?	U	RR4	60	?	U	RR4	50	?	U	EX0	0	?	U	EX0	0	?	U
	218	Littlefield Res	?	?	DF	?	U	DF	N/A	?	U	EX0	N/A	?	U	EX0	N/A	?	U	EX0	N/A	?	U
	226	Creston	M	S	RR4	L	U	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	?	U
0303	01	Slaten	L	S	RR2	L	S	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	02	Juniper Mtn	L	S	DF	L	U	DF	60	L	U	DF	50	L	U	DF	40	L	U	DF	40	L	U
	03	Whiskey Spring	L	S	RR2	L	S	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	04	Clark Flat	M	S	RR2	M	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	05	Sand Basin	M	S	RR2	M	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	06	FFR	?	?	SS	?	D	DR1	N/A	?	S	DR1	N/A	?	S	DR1	N/A	?	S	DR1	N/A	?	S
0304	01	Juntura Sdg	G	U	EA	X	U	DR1	65	G	S	SS	60	G	S	SS	50	G	S	SS	50	G	S
	02	Butte	M	S	RR2	M	S	DR1	50	L	U	RR2	50	L	U	RR2	40	L	U	RR2	40	L	U
	03	Terry Basin	M	S	RR2	M	S	DR1	50	L	U	RR2	50	L	U	RR2	40	L	U	RR2	40	L	U
	04	Meeker Mtn	L	U	DR2	L	U	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	05	Weisner	L	S	EA	L	U	DR1	40	L	U	DR2	40	L	U	DR2	40	L	U	DR2	40	L	U
	06	Juniper Basin Sdg	X	U	DR1	X	S	DR1	65	X	S	SS	60	X	S	SS	50	X	S	SS	50	X	S
	07	Pothones	L	S	DR1	L	S	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	EX2	40	L	S
	08	Water Gulch	M	S	RR2	M	S	DR1	50	L	U	RR2	50	L	U	RR2	40	L	U	RR2	40	L	U
	09	Sheep Rocks	L	S	RR2	L	S	DR1	40	L	U	DR2	40	L	U	DR2	40	L	U	DR2	40	L	U
	10	Parks	M	S	RR2	M	S	DR1	50	L	U	RR2	50	L	U	RR2	40	L	U	RR2	40	L	U
	15	Moritz	L	S	DF	L	U	DF	40	L	U	DR2	40	L	U	DR2	40	L	U	DR2	40	L	U
	16	McGetrick	M	S	RR2	M	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	17	FFR	?	?	SS	?	D	DR1	N/A	?	S	DR1	N/A	?	S	DR1	N/A	?	S	DR1	N/A	?	S
0305	01	Willow Spring	L	S	RR1	L	U	RR1	N/A	L	U	RR1	N/A	L	U	RR1	N/A	L	U	RR1	N/A	L	U
	02	Tables	M	S	RR1	L	U	DR1	N/A	M	S	RR1	N/A	L	U	RR1	N/A	L	U	RR1	N/A	L	U
	03	Dugout-Bridge Gulch	M	S	RR1	L	U	DR1	N/A	M	S	RR1	N/A	L	U	RR1	N/A	L	U	RR1	N/A	L	U
	04	FFR	?	?	SS	?	D	DR1	N/A	?	S	RR1	N/A	?	U	RR1	N/A	?	U	RR1	N/A	?	U
	05	Willow Spr Res Ex	?	?	RR1	?	U	DR1	N/A	?	S	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
0306	01	Sperry Creek	M	S	RR4	L	U	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	02	Indian Creek	M	D	RR4	L	U	DR1	40	L	U	RR2	40	L	U	RR2	40	L	U	RR2	40	L	U

Appendix C - Table C-1, Pasture Specific Data
Proposed Grazing Systems, Maximum Allowable Utilization, Predicted Long-term Condition and Trend (Continued)

Allot No.	Past No.	Pasture Name	Existing		Alternative 1			Alternative 2				Alternative 3				Alternative 4				Alternative 5			
			Condition	Trend	Grazing System	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend
	03	Trail Cr	M	S	DR1	M	S	DR1	50	L	U	RR2	50	L	U	RR2	40	L	U	RR2	40	L	U
	04	Saddle Horse	L	S	RR4	L	U	DR1	60	L	S	RR2	50	L	U	RR2	40	L	U	RR2	40	L	U
	05	Horse Camp	M	S	SS	M	D	DR1	50	L	U	RR2	50	L	U	RR2	40	L	U	RR2	40	L	U
	06	Antelope Swales	L	S	RR4	L	U	DR1	60	L	S	RR2	50	L	U	RR2	40	L	U	RR2	40	L	U
	07	Dinner Creek	?	?	SS	?	D	DR1	50	?	U	DR1	50	?	U	DR1	40	?	U	DR1	40	?	U
	08	Tims Peak	?	?	SS	?	D	DR1	50	?	U	DR1	50	?	U	DR1	40	?	U	DR1	40	?	U
	09	FFR	?	?	SS	?	D	DR1	N/A	?	S	DR1	N/A	?	S	DR1	N/A	?	S	DR1	N/A	?	S
0307	01	Lower Field	L	S	SS	L	D	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	02	Upper Field	L	S	DR1	L	S	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	03	Private	L	S	DR1	L	S	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	04	FFR	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
	05	Wildhorse Basin Ex	?	?	DR1	?	S	DR1	0	?	S	DR1	0	?	S	EX0	0	?	U	EX0	0	?	U
	06	Big Swales Res Ex	?	?	SS	?	D	SS	60	?	D	SS	50	?	S	EX0	0	?	U	EX0	0	?	U
0400	101	Callahan	L	S	DR4	L	U	DR4	60	L	U	DR4	50	L	U	DR4	40	L	U	DR4	40	L	U
	102	Little Valley Sdg	X	U	SF	X	U	SS	65	X	S	SS	60	X	S	SS	50	X	S	SS	50	X	S
	103	Winter Spr Sdg	X	S	SF	X	U	SS	65	X	S	SS	60	X	S	SS	50	X	S	SS	50	X	S
	104	Hunter	L	S	DR4	L	U	DR4	60	L	U	DR4	50	L	U	DR4	40	L	U	DR4	40	L	U
	105	Freezeout	L	S	DR4	L	U	DR4	60	L	U	DR4	50	L	U	DR4	40	L	U	DR4	40	L	U
	106	Drip Springs	M	D	SS	E	D	DR4	40	L	U	DR4	40	L	U	DR4	40	L	U	DR4	40	L	U
	107	FFR	?	?	FFR	?	S	FFR	40	?	S	FFR	40	?	S	FFR	40	?	S	FFR	40	?	S
	108	Chukar	L	S	DR4	L	U	DR2	40	L	U	DR2	40	L	U	DR2	40	L	U	DR2	40	L	U
	109	Keeney Creek	L	S	DR4	L	U	DR2	40	L	U	DR2	40	L	U	DR2	40	L	U	DR2	40	L	U
	110	Winter Rip	?	?	SF	?	U	DR2	40	?	U	DR2	40	?	U	DR2	40	?	U	DR2	40	?	U
	111	Callahan Spr Rip	?	?	DR4	?	U	DR2	40	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	112	East Harper	?	?	EX0	?	U	EX0	40	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	113	Stacy Cabin	?	?	DR4	?	U	DR2	40	?	U	DR2	0	?	U	DR2	0	?	U	DR2	0	?	U
	114	Cabin Springs	?	?	DR4	?	U	DR2	40	?	U	DR2	0	?	U	DR2	0	?	U	DR2	0	?	U
	301	Cow Hollow Sdg	X	S	DR1	X	S	DR1	65	X	S	DR1	60	X	S	DR1	50	X	U	DR1	50	X	U
	302	Rock Creek	M	D	DR1	M	S	DR1	40	L	U	DR1	40	L	U	DR1	40	L	U	DR1	40	L	U
	303	Sagebrush	M	S	DR4	L	U	DR4	50	L	U	DR4	50	L	U	DR4	40	L	U	DR4	40	L	U
	304	Rye Field Sdg	X	U	DR4	X	U	DR4	65	X	U	DR4	60	X	U	DR4	50	X	U	DR4	50	X	U
	305	Grassy Sdg	X	S	DR4	X	U	DR4	65	X	U	DR4	60	X	U	DR4	50	X	U	DR4	50	X	U
	306	Grassy Mtn	L	S	DR1	L	S	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	307	FFR	?	?	FFR	?	S	FFR	0	?	S	FFR	0	?	S	FFR	0	?	S	FFR	0	?	S
	308	Mud Springs Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	309	Sage Res Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	310	Rock Creek Rip	?	?	DR1	?	S	DR1	40	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	311	Ryefield Res Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	312	Twin Springs Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	313	Littletwin Res Ex	?	?	DR1	?	S	DR2	40	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	314	N. Grass Mtn Res Ex	?	?	DR4	?	U	DR2	40	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	401	Double Mtn	M	D	SF	L	U	DR1	40	L	U	DR1	40	L	U	DR1	40	L	U	DR1	40	L	U
	402	Sand Hollow Sdg	X	S	SS	X	D	DR1	65	X	S	DR1	60	X	S	DR1	50	X	U	DR1	50	X	U
	403	Canyon	M	S	DR1	M	S	SS	50	M	S	SS	50	M	S	SS	40	M	S	SS	40	M	S
	404	Kane Springs	M	S	DR1	M	S	SS	50	M	S	SS	50	M	S	SS	40	M	S	SS	40	M	S
	405	Freezeout Lake	L	S	DR1	L	S	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	408	Hurley Spring	L	S	DR4	L	U	DR4	60	L	U	DR4	50	L	U	EX0	40	L	U	EX0	40	L	U
	410	Dry Creek	L	S	DR4	L	U	DR2	40	L	U	DR2	40	L	U	EX0	40	L	U	EX0	40	L	U
	411	Kane Spr Res Ex	?	?	DR1	?	S	SS	40	?	S	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	412	Sponge Spr Ex	?	?	DR1	?	S	DR1	40	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	413	Flowing Wells Ex	?	?	EX0	?	U	EX0	40	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	414	Dm Spring Ex	?	?	EX0	?	U	EX0	40	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	415	Freezesum Res	?	?	DR1	?	S	DR2	40	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	417	Morton Dm	?	?	SF	?	U	DR1	40	?	U	DR1	40	?	U	DR1	40	?	U	DR1	40	?	U
	418	Russell FFR	?	?	FFR	?	S	FFR	40	?	S	FFR	40	?	S	FFR	40	?	S	FFR	40	?	S
	419	Dm Res	?	?	SF	?	U	DR2	40	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	501	Dry Creek Buttes	M	S	DR1	M	S	DR3	50	M	D	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	502	West Juniper	M	S	DR1	M	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	503	Schaeffer	L	S	DR1	L	S	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	505	McNulty	E	S	DF	E	U	DR1	40	E	U	DR1	40	E	U	DR1	40	E	U	DR1	40	E	U
	506	Hub Field	M	D	SF	L	U	SF	40	L	U	SF	40	L	U	SF	40	L	U	SF	40	L	U
	507	Mud Flat FFR	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
	508	Antelope Flat Sdg	F	S	DR1	F	S	DR1	65	F	S	DR1	60	F	S	DR1	50	G	U	DR1	50	G	U
	509	Juniper Cr Res	?	?	DR1	?	S	DR1	N/A	?	S	EX0	N/A	?	U	EX0	N/A	?	U	EX0	N/A	?	U

Appendix C - Table C-1, Pasture Specific Data
Proposed Grazing Systems, Maximum Allowable Utilization, Predicted Long-term Condition and Trend (Continued)

Allot No.	Past No.	Pasture Name	Existing		Alternative 1			Alternative 2				Alternative 3				Alternative 4				Alternative 5			
			Condition	Trend	Grazing System	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend
	601	Cedar Mtn	L	S	DR1	L	S	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	602	Willow Spring	L	S	DR2	L	U	DR2	N/A	L	U	DR2	N/A	L	U	DR2	N/A	L	U	DR2	N/A	L	U
	603	Red Butte	M	S	W0	L	U	W0	60	L	U	W0	50	L	U	W0	40	L	U	W0	40	L	U
	604	Rust FFR	?	?	FFR	?	S	FFR	40	?	S	FFR	40	?	S	FFR	40	?	S	FFR	40	?	S
0407	01	N. Vines Hill	X	S	DR1	X	U	DR1	65	X	U	DR1	60	X	U	DR1	50	X	U	DR1	50	X	U
	02	E Vines Hill Sdg	E	D	RR4	E	U	RR4	40	E	U	RR4	40	E	U	RR4	40	E	U	RR4	40	E	U
	03	S. Vines Hill Sdg	P	S	DR1	F	U	DR1	N/A	F	U	DR1	N/A	F	U	DR1	N/A	F	U	DR1	N/A	F	U
	04	Rabbit Farm-Lit Vlly	X	S	DR4	X	U	DR4	65	X	U	DR4	60	X	U	DR4	50	X	U	DR4	50	X	U
	06	Vines Hill Res Ex	?	?	EX0	?	U	EX0	N/A	?	U	EX0	N/A	?	U	EX0	N/A	?	U	EX0	N/A	?	U
0408	01	Mitchell Butte	M	D	SS	E	D	SS	40	M	S	SS	40	M	S	SS	40	M	S	SS	40	M	S
	02	Butte Rip	?	?	SS	?	D	SS	0	?	D	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
0410	01	Radar Hill	?	?	DR2	?	U	DR2	40	?	U	DR2	40	?	U	DR2	40	?	U	DR2	40	?	U
	02	Radar Sdg	X	S	DR2	X	U	DR2	65	X	U	DR2	60	X	U	DR2	50	X	U	DR2	50	X	U
	03	FFR	?	?	FFR	?	S	FFR	0	?	S	FFR	0	?	S	FFR	0	?	S	FFR	0	?	S
0412	01	Chalk Butte FFR	?	?	EA	?	U	SS	40	?	S	EA	40	?	U	EA	40	?	U	EA	40	?	U
0500	301	Tunnel Canyon	M	S	DR1	M	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	302	Alkali	M	S	SS	M	D	DR3	50	L	U	SS	50	M	S	SS	40	M	S	SS	40	M	S
	303	BAS	L	S	DR1	L	S	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	304	Board Corral	L	S	DF	L	U	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	305	Wildhorse Basin	L	S	DR3	L	U	DR3	60	L	U	DR3	50	L	U	DR3	40	L	U	EX2	40	L	S
	306	Sheephead Sdg	G	S	SS	G	S	SS	65	G	S	SS	60	G	S	SS	50	G	S	SS	50	G	S
	307	Camp Kettle	L	S	DR1	L	S	SF	40	L	U	SF	40	L	U	SF	40	L	U	SF	40	L	U
	309	Antelope	L	S	DR3	L	U	DR3	60	L	U	DR3	50	L	U	DR3	40	L	U	DR3	40	L	U
	310	McIntyre	M	S	DR1	M	S	SF	50	L	U	SF	50	L	U	SF	40	L	U	EX2	40	M	S
	311	Saddle Butte	M	S	DR1	M	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	312	Bannock	L	S	DR1	L	S	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	313	Sulphur Spr Sdg	E	S	SS	E	D	SS	65	E	D	SS	60	E	D	SS	50	E	S	SS	50	E	S
	315	Riverside	M	S	DR1	M	S	DR2	50	L	U	DR2	50	L	U	DR2	40	L	U	EX2	40	M	S
	316	FFR	?	?	FFR	?	S	FFR	40	?	S	FFR	40	?	S	FFR	40	?	S	FFR	40	?	S
	317	Saddle Butte Rip	?	?	DR2	?	U	DR2	40	?	U	DR2	40	?	U	EX0	0	?	U	EX0	0	?	U
	318	Alkali Rip	?	?	SS	?	D	EA	40	?	U	EA	40	?	U	EX0	0	?	U	EX0	0	?	U
	319	Board Corral Pit Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	320	Antelope Spr Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	N/A	?	U	EX0	N/A	?	U	EX0	N/A	?	U
	321	Saddle Butte Rex	?	?	DR1	?	S	DR1	50	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	322	McIntyre Res	?	?	DR1	?	S	DR1	50	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	323	Pinnacle Res	?	?	DR1	?	S	DR1	50	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	324	Cunningham Rex	?	?	DR1	?	S	DR1	40	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	325	Bar Cross Basin Ex	?	?	DR1	?	S	DR2	50	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	326	Leslie Gulch	?	?	EA	?	U	EA	40	?	U	EA	40	?	U	EA	40	?	U	EA	40	?	U
	329	3 Fingers Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	330	Antelope Test Plot	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	331	Leslie Gulch Plot	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	332	Mahogany RNA	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	401	Top Spray N	M	D	DR2	L	U	DR1	N/A	M	S	DR1	N/A	M	S	DR1	N/A	M	S	DR1	N/A	M	S
	402	Top Spray S	M	S	DR2	L	U	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	403	McBride Creek	M	S	DR2	L	U	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	404	Rockville Sdg N	E	S	SS	E	S	DR1	65	E	S	DR1	60	E	S	DR1	50	E	U	DR1	50	E	U
	405	Spring Cr Sdg	E	S	SS	E	S	DR1	65	E	D	DR1	60	E	D	DR1	50	E	S	DR1	50	E	S
	406	Rockville Sdg S	E	S	SS	E	S	DR1	65	E	S	DR1	60	E	S	DR1	50	E	U	DR1	50	E	U
	407	Ion	L	S	DR1	L	S	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	408	Falen Sdg	F	S	SS	F	S	DR5	65	F	S	DR5	60	F	S	DR5	50	F	S	DR5	50	F	S
	409	Spring Basin Sdg	X	S	SS	X	S	SS	65	X	S	SS	60	X	S	SS	50	X	S	SS	50	X	S
	410	Carter Cr Sdg	X	S	SS	X	S	SS	N/A	X	S	SS	N/A	X	S	SS	N/A	X	S	SS	N/A	X	S
	411	Shalerock	L	S	DR1	L	S	RR4	N/A	L	U	RR4	N/A	L	U	RR4	N/A	L	U	RR4	N/A	L	U
	412	Old Maid Sdg N	X	S	SS	X	S	SS	N/A	X	S	SS	N/A	X	S	SS	N/A	X	S	SS	N/A	X	S
	413	Sagehen Basin	M	S	DR1	M	S	RR4	N/A	L	U	RR4	N/A	L	U	RR4	N/A	L	U	RR4	N/A	L	U
	414	Falon Spr Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	N/A	?	U	EX0	N/A	?	U	EX0	N/A	?	U
	415	Strode Spr Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	416	Spring Mtn Sdg	X	S	SS	X	S	SS	65	X	S	SS	60	X	S	SS	50	X	S	SS	50	X	S
	417	Spring Mtn Nr	M	S	DR1	M	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	418	Sheaville	M	D	DR1	M	S	DR1	40	L	U	DR1	40	L	U	DR1	40	L	U	DR1	40	L	U
	419	Old Maid S	X	S	SS	X	S	SS	65	X	S	SS	60	X	S	SS	50	X	S	SS	50	X	S
	420	Dog Creek Pit Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	421	Sticky Joe Sdg	X	S	SS	X	S	SS	65	X	S	SS	60	X	S	SS	50	X	S	SS	50	X	S

Appendix C - Table C-1, Pasture Specific Data
Proposed Grazing Systems, Maximum Allowable Utilization, Predicted Long-term Condition and Trend (Continued)

Allot No.	Past No.	Pasture Name	Existing		Alternative 1			Alternative 2				Alternative 3				Alternative 4				Alternative 5			
			Condition	Trend	Grazing System	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend
	422	MacKenzie FFR	?	?	SS	?	D	W0	N/A	?	U	SS	N/A	?	D	SS	N/A	?	D	SS	N/A	?	D
	423	Carter Cr Rip	?	?	SS	?	S	EA	40	?	U	EA	40	?	U	EX0	40	?	U	EX0	40	?	U
	424	Sagehen Rip	?	?	DR1	?	S	EA	40	?	U	EA	40	?	U	EX0	40	?	U	EX0	40	?	U
	501	Blackrocks	M	S	W0	L	U	W0	60	L	U	W0	50	L	U	W0	40	L	U	W0	40	L	U
	503	Blue Canyon	L	S	DR1	L	S	DR1	N/A	L	S	DR1	N/A	L	S	DR1	N/A	L	S	DR1	N/A	L	S
	504	Spring Basin	L	S	EA	L	U	SS	40	L	S	SS	40	L	S	SS	40	L	S	SS	40	L	S
	505	McCain Spr Sdg	X	S	DR1	X	S	DR1	65	X	S	DR1	60	X	S	DR1	50	X	U	DR1	50	X	U
	506	Mahogany Mtn	L	S	DF	L	U	DF	60	L	U	DF	50	L	U	DF	40	L	U	DF	40	L	U
	507	Road Res	L	S	DR1	L	S	DR4	60	L	U	DR4	50	L	U	DR4	40	L	U	DR4	40	L	U
	508	P Pot	L	S	DR1	L	S	DR4	60	L	U	DR4	50	L	U	DR4	40	L	U	DR4	40	L	U
	509	S Shellrock	M	S	DR1	M	S	DR1	40	L	U	DR4	40	L	U	DR4	40	L	U	DR4	40	L	U
	510	N Shellrock	M	S	DR1	M	S	DR1	60	M	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	511	Fish Creek	M	S	DR1	M	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	512	Tableland Annex	L	S	DR1	L	S	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	513	Schnable Creek Sdg	X	U	DR1	X	S	DR1	65	X	S	DR1	60	X	S	DR1	50	X	U	DR1	50	X	U
	514	FFR	?	?	FFR	?	S	FFR	0	?	S	FFR	0	?	S	FFR	0	?	S	FFR	0	?	S
	515	Hang Up Res Ex	?	?	DR1	?	S	DR1	40	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	516	Schnable Res Ex	?	?	DR1	?	S	DR1	40	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	517	McConnel Res Ex	?	?	DR1	?	S	DR1	40	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	518	Ground Hog Ex	?	?	EX0	?	U	EX0	40	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	519	Road Res Ex	?	?	EX0	?	U	EX0	40	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	520	Hawk's Nest	?	?	DR1	?	S	DR1	40	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	521	Wild Rose	?	?	DR1	?	S	DR1	40	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	524	Circle Bar FFR	?	?	FFR	?	S	FFR	0	?	S	FFR	0	?	S	FFR	0	?	S	FFR	0	?	S
0501	01	East	M	S	DR1	M	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	02	West	M	S	DR1	M	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	03	Brown Butte	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
0502	01	River	M	S	FFR	M	S	FFR	40	M	S	FFR	40	M	S	FFR	40	M	S	FFR	40	M	S
0506	01	Birch Creek	M	S	SS	M	D	SS	40	M	S	SS	40	M	S	SS	40	M	S	SS	40	M	S
0601	01	Turnbull	E	S	DR4	E	U	DR4	N/A	E	U	DR4	N/A	E	U	DR4	N/A	E	U	DR4	N/A	E	U
	02	Obenchain-Duck Butte	M	S	DR1	M	S	DR1	N/A	M	S	DR1	N/A	M	S	DR1	N/A	M	S	DR1	N/A	M	S
	03	FFR	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
0602	01	Westside-Rnd Mtn	M	S	DR1	M	S	DR1	N/A	M	S	DR1	N/A	M	S	DR1	N/A	M	S	DR1	N/A	M	S
	02	Rockjack-Big Flat	M	S	SF	L	U	SF	N/A	L	U	SF	N/A	L	U	SF	N/A	L	U	SF	N/A	L	U
	03	Northside	M	S	SS	M	D	SS	N/A	M	D	SS	N/A	M	D	SS	N/A	M	D	SS	N/A	M	D
	04	Eastside	M	S	DR1	M	S	DR1	N/A	M	S	DR1	N/A	M	S	DR1	N/A	M	S	DR1	N/A	M	S
	05	FFR	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
0603	01	Lower Swamp	L	D	EA	L	U	RR1	50	L	U	RR1	50	L	U	RR1	40	L	U	RR1	40	L	U
	02	Vischer	M	S	RR4	L	U	RR1	50	L	U	RR1	50	L	U	RR1	40	L	U	RR1	40	L	U
	03	Hickey	L	S	RR4	L	U	RR4	60	L	U	RR4	50	L	U	RR4	40	L	U	RR4	40	L	U
	04	Hughes	L	S	DF	L	U	DF	60	L	U	DF	50	L	U	DF	40	L	U	DF	40	L	U
	05	Swamp-Big Flat	M	S	DR4	L	U	DR4	50	L	U	DR4	50	L	U	DR4	40	L	U	DR4	40	L	U
	06	Stockade	E	S	DR1	E	S	DR1	40	E	U	DR1	40	E	U	DR1	40	E	U	EX2	40	E	S
	08	Duck Pond	M	S	DR1	M	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	09	FFR	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
0604	01	Turnbull Lake	X	S	EA	X	U	EA	N/A	X	U	EA	N/A	X	U	EA	N/A	X	U	EX2	N/A	X	S
	02	Little Lakes-Mustang	E	S	DR1	E	S	DR1	N/A	E	S	DR1	N/A	E	S	DR1	N/A	E	S	DR1	N/A	E	S
	03	Piute	M	S	DF	L	U	DF	N/A	L	U	DF	N/A	L	U	DF	N/A	L	U	DF	N/A	L	U
	05	FFR	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
0605	01	North Heifer-Deadman	M	D	RR3	E	D	RR3	N/A	E	D	RR3	N/A	E	D	RR3	N/A	E	D	RR3	N/A	E	D
	02	Jake Hughes	L	S	DR1	L	S	DR1	N/A	L	S	DR1	N/A	L	S	DR1	N/A	L	S	DR1	N/A	L	S
	03	Deadman	M	S	SS	M	D	SS	N/A	M	D	SS	N/A	M	D	SS	N/A	M	D	SS	N/A	M	D
	04	FFR	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
		Lower	M	S	SS	M	D	SS	N/A	M	D	SS	N/A	M	D	SS	N/A	M	D	SS	N/A	M	D
	05	Homestead	L	S	DR2	L	U	DR2	N/A	L	U	DR2	N/A	L	U	DR2	N/A	L	U	DR2	N/A	L	U
0701	01	Sheepheads	M	S	SS	M	D	SS	50	M	S	SS	50	M	S	SS	40	M	S	EX2	40	M	S
	02	Bone Cr Res Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	03	Rock Corral Sp Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	04	Sheepheads Plot	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	05	W. Ryegrass	M	S	SS	M	D	DR5	N/A	M	S	DR5	N/A	M	S	DR5	N/A	M	S	EX2	N/A	L	U
0801	00	Crooked Cr Sp Res Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	01	South	M	S	W0	L	U	EA	50	L	U	EA	50	L	U	EA	40	L	U	EX2	40	M	S
	02	Bowden Hills	M	S	W0	L	U	W0	50	L	U	W0	50	L	U	W0	40	L	U	W0	40	L	U
	03	North	M	S	W0	L	U	W0	50	L	U	W0	50	L	U	W0	40	L	U	EX2	40	M	S

Appendix C - Table C-1, Pasture Specific Data
Proposed Grazing Systems, Maximum Allowable Utilization, Predicted Long-term Condition and Trend (Continued)

Allot No.	Past No.	Pasture Name	Existing		Alternative 1			Alternative 2				Alternative 3				Alternative 4				Alternative 5			
			Condition	Trend	Grazing System	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend
	04	Palomino Hills	M	S	W0	L	U	SF	50	L	U	SF	50	L	U	SF	40	L	U	EX2	40	M	S
	05	East Ryegrass	M	U	W0	L	U	DF	60	L	U	DF	50	L	U	DF	40	L	U	EX2	40	M	S
	06	BV Study Plot	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	08	Bowden Guzzler Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	09	4 Guzzler Exs	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	10	FFR	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
0802	01	Sand Gap	M	S	W0	L	U	W0	N/A	L	U	W0	N/A	L	U	W0	N/A	L	U	EX2	N/A	M	S
0901	01	West	M	D	DR1	M	S	DR4	40	L	U	DR4	40	L	U	DR4	40	L	U	DR4	40	L	U
	02	East	M	S	DR1	M	S	DR4	50	L	U	DR4	50	L	U	DR4	40	L	U	DR4	40	L	U
0902	01	Riley Horn	M	S	DR1	M	S	DR1	50	L	U	DR1	50	L	U	DR1	4	M	S	DR1	4	M	S
	02	Mud Flat	E	U	DR1	E	S	DR1	50	M	U	DR1	50	M	U	DR1	40	M	U	DR1	40	M	U
	05	Bogus Creek	E	S	DR1	E	S	DR1	40	E	U	DR1	40	E	U	DR1	40	E	U	DR1	40	E	U
	06	Navaro V	X	U	DR1	X	S	DR1	65	X	S	DR1	60	X	S	DR1	50	X	U	DR1	50	X	U
	07	Owyhee Canyon BC	X	U	DR1	X	S	DR1	65	X	S	DR1	60	X	S	DR1	50	X	U	DR1	50	X	U
	08	West Crater BC	M	S	DR1	M	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	09	Clarks Butte	M	S	DR1	M	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	10	Dog Lake E&W	M	U	DR2	L	U	RR4	60	L	U	RR4	50	L	U	RR4	40	L	U	RR4	40	L	U
	12	Arock	E	U	DR1	E	S	DR1	50	M	U	DR1	50	M	U	DR1	40	M	U	DR1	40	M	U
	13	Owyhee Butte #2	X	U	DR1	X	S	DR1	65	X	S	DR1	60	X	S	DR1	50	X	U	DR1	50	X	U
	16	Owyhee Butte #3	X	U	DR1	X	S	DR1	65	X	S	DR1	60	X	S	DR1	50	X	U	DR1	50	X	U
	17	Owyhee Butte #4, #5	X	U	DR1	X	S	DR1	65	X	S	DR1	60	X	S	DR1	50	X	U	DR1	50	X	U
	18	Owyhee Butte #1	X	S	DR1	X	S	DR1	65	X	S	DR1	60	X	S	DR1	50	X	U	DR1	50	X	U
	19	Lava Butte Lower Fd.	?	?	N00	?	S	N00	0	?	S	N00	N/A	?	S	N00	N/A	?	S	N00	N/A	?	S
	20	Lodge Annex E&W	?	?	RR4	?	U	RR4	60	?	U	RR4	50	?	U	RR4	40	?	U	RR4	40	?	U
	21	Owyhee Butte #3 Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	22	Mud Flat Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	23	Bogus Cr Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	24	Navarro V Gussier Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	25	Bogus Lake Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	26	FFR	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
	27	Owyhee Butte BB Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	N/A	?	U	EX0	N/A	?	U	EX0	N/A	?	U
0903	01	Hooker Creek N	X	S	DR1	X	S	DR1	65	X	S	DR1	60	X	S	DR1	50	X	U	DR1	50	X	U
	02	Hooker Creek S	L	S	DR1	L	S	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	03	Jordan Valley N	X	U	DR5	X	S	DR5	65	X	S	DR5	60	X	S	DR5	50	X	S	DR5	50	X	S
	04	Jordan Valley S	X	S	DR5	X	S	DR5	65	X	S	DR5	60	X	S	DR5	50	X	S	DR5	50	X	S
	05	Big Ridge N	X	S	DR1	X	U	DR1	65	X	U	DR1	60	X	U	DR1	50	X	U	DR1	50	X	U
	06	Barlow BC	M	D	DR1	M	S	DR1	40	L	U	DR1	40	L	U	DR1	40	L	U	DR1	40	L	U
	07	Cowgill	M	U	DR1	M	S	DR1	60	M	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	08	Boulder	L	S	DR1	L	S	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	09	Downey Canyon	G	S	DR1	X	U	DR1	65	G	U	DR1	60	X	U	DR1	50	X	U	DR1	50	X	U
	10	Little Sandy W	X	S	DR2	X	U	DR2	65	X	U	DR2	60	X	U	DR2	50	X	U	DR2	50	X	U
	11	Little Sandy NE	X	D	DR1	G	D	DR1	60	G	D	DR1	60	G	D	DR1	50	X	S	DR1	50	X	S
	12	Little Sandy S	X	S	DR1	X	D	DR1	65	X	D	DR1	60	X	D	DR1	50	X	S	DR1	50	X	S
	13	Lava	L	U	SS	L	D	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	14	Big Ridge S	X	S	DR1	X	S	DR1	65	X	S	DR1	60	X	S	DR1	50	X	U	DR1	50	X	U
	15	Barlow Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	16	L. Sandy Sp Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	17	FFR	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
	18	Barlow Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	N/A	?	U	EX0	N/A	?	U	EX0	N/A	?	U
0904	01	Bogus Creek	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
0905	01	Oliver	M	D	DF	L	U	DF	40	L	U	DF	40	L	U	DF	40	L	U	DF	40	L	U
0907	01	Morcum	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
1001	01	Bull Pasture	?	?	N00	?	S	N00	0	?	S	N00	50	?	S	N00	50	?	S	N00	50	?	S
	02	Rock Creek Sdg	X	S	DR1	X	U	DR1	65	X	U	DR1	60	X	U	DR1	50	X	U	DR1	50	X	U
	03	Tankey	M	S	RR4	L	U	RR4	50	L	U	RR4	50	L	U	RR4	40	L	U	RR4	40	L	U
	04	Noon	L	U	DR1	L	S	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	05	Little Grassy	M	U	RR4	L	U	RR4	60	L	U	RR4	50	L	U	RR4	40	L	U	RR4	40	L	U
	07	Monument	E	S	DR1	E	S	DR1	40	E	U	DR1	40	E	U	DR1	40	E	U	DR1	40	E	U
	08	Dry Creek	X	U	RR4	X	U	RR4	65	X	U	RR4	60	X	U	RR4	50	X	U	RR4	50	X	U
	09	Rome #1	G	S	RR4	X	U	RR4	65	G	U	RR4	60	X	U	RR4	50	X	U	RR4	50	X	U
	10	Rome #2	X	U	RR4	X	U	RR4	65	X	U	RR4	60	X	U	RR4	50	X	U	RR4	50	X	U
	11	Rome #3	X	U	RR4	X	U	RR4	65	X	U	RR4	60	X	U	RR4	50	X	U	RR4	50	X	U
	12	Rome #4	X	S	DR1	X	U	DR1	65	X	U	DR1	60	X	U	DR1	50	X	U	DR1	50	X	U
	13	Round Mtn	G	S	DR1	X	U	DR1	65	G	U	DR1	60	X	U	DR1	50	X	U	DR1	50	X	U

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Proposed Grazing Systems, Maximum Allowable Utilization, Predicted Long-term Condition and Trend (Continued)

Allot No.	Past No.	Pasture Name	Existing		Alternative 1			Alternative 2				Alternative 3				Alternative 4				Alternative 5			
			Condition	Trend	Grazing System	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend
	14	Rome #5	X	U	DR1	X	S	DR1	65	X	S	DR1	60	X	S	DR1	50	X	U	DR1	50	X	U
	15	Pinto Horse	M	U	DR1	M	S	DR1	60	M	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	16	Noon Res Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	17	Rock Cr Res Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	18	FFR	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
1002	01	Antelope W	X	U	DR1	X	S	DR1	65	X	S	DR1	60	X	S	DR1	50	X	U	DR1	50	X	U
	02	Antelope E	X	S	DR2	X	U	DR2	65	X	U	DR2	60	X	U	DR2	50	X	U	DR2	50	X	U
	03	Sheep Spring Sdg	X	S	DR1	X	U	DR1	65	X	U	DR1	60	X	U	DR1	50	X	U	DR1	50	X	U
	04	Soldier Creek SE	X	S	DR1	X	S	DR1	65	X	S	DR1	60	X	S	DR1	50	X	U	DR1	50	X	U
	05	Soldier Creek E	X	S	SS	X	S	SS	65	X	S	SS	60	X	S	SS	50	X	S	SS	50	X	S
	06	Soldier Cr Sdg W	X	S	SS	X	S	SS	65	X	S	SS	60	X	S	SS	50	X	S	SS	50	X	S
	07	Greeley North	X	S	DR1	X	S	DR1	65	X	S	DR1	60	X	S	DR1	50	X	U	DR1	50	X	U
	08	Greeley South	M	S	DR2	L	U	DR2	50	L	U	DR2	50	L	U	DR2	40	L	U	DR2	40	L	U
	09	Rock	M	S	DR1	M	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	10	Black Butte N	L	S	SS	L	S	SS	60	L	S	SS	50	L	S	SS	40	L	S	SS	40	L	S
	11	Black Butte S	M	U	SS	M	S	SS	60	M	S	SS	50	M	S	SS	40	M	S	SS	40	M	S
	12	Parsnip Peak	M	D	DR1	M	S	DR1	40	L	U	DR1	40	L	U	DR1	40	L	U	DR1	40	L	U
	13	Antelope Flat	M	D	SS	E	D	SS	40	M	S	SS	40	M	S	SS	40	M	S	SS	40	M	S
	15	Three C Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	16	Parsnip Pk Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	17	Antelope Res Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	18	Tom Skinner Res Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	19	Cantor Corral Pit Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	20	Antelope Rim Sp Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	21	Gluch Pit Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	22	Cantor Corral Sp Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	23	Hicks Cnyn Res Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	24	Bluch Sp Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	25	Round Peak Sp Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	26	Sagehen Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	N/A	?	U	EX0	N/A	?	U	EX0	N/A	?	U
	27	FFR	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
1003	01	Brickey Springs	X	S	DR4	X	U	DR4	65	X	U	DR4	60	X	U	DR4	50	X	U	DR4	50	X	U
	02	Wildcat	E	D	DR4	E	U	DR4	40	E	U	DR4	40	E	U	DR4	40	E	U	DR4	40	E	U
	03	Coffee Pot	L	D	DR1	L	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	04	Chicken Creek	L	D	DR2	L	U	DR2	40	L	U	DR2	40	L	U	DR2	40	L	U	DR2	40	L	U
	05	FFR	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
1004	01	Horse Ridge S	M	S	DR1	M	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	02	Indian Canyon W	X	D	DR1	X	U	DR1	60	X	U	DR1	60	X	U	DR1	50	X	U	DR1	50	X	U
	03	Indian Canyon E	M	D	DR1	M	S	DR1	40	L	U	DR1	40	L	U	DR1	40	L	U	DR1	40	L	U
	04	Flat Creek	M	S	DR1	M	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	05	Rim Basin Sdg	X	U	DR1	X	U	DR1	65	X	U	DR1	60	X	U	DR1	50	X	U	DR1	50	X	U
	06	Jaca Sdg E	X	S	DR2	X	U	DR2	65	X	U	DR2	60	X	U	DR2	50	X	U	DR2	50	X	U
	07	Willow Creek N	L	S	DR1	L	S	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	08	Frank Mahar BC	M	S	DR1	M	D	DR1	50	M	S	DR1	50	M	S	DR1	40	M	S	DR1	40	M	S
	09	Black Butte	M	U	DR1	M	S	DR1	60	M	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	10	Gluch Sdg S	X	U	DR1	X	U	DR1	65	X	U	DR1	60	X	U	DR1	50	X	U	DR1	50	X	U
	11	Gluch Seeding N	X	S	SS	X	S	SS	65	X	S	SS	60	X	S	SS	50	X	S	SS	50	X	S
	12	Willow Cr W	L	D	DR1	L	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	13	Willow Creek E	L	S	DR1	L	S	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	14	Horse Ridge N	L	S	SS	L	D	SS	60	L	D	SS	50	L	S	SS	40	L	S	SS	40	L	S
	15	Jaca Sdg W	X	U	DR1	X	S	DR1	65	X	S	DR1	60	X	S	DR1	50	X	U	DR1	50	X	U
	16	Horse Ridge E	E	S	DR1	E	S	DR1	40	E	U	DR1	40	E	U	DR1	40	E	U	DR1	40	E	U
	17	Castro Pit Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	18	Castro Sp Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	19	FFR	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
1005	01	East	L	S	DR1	L	D	DR1	N/A	L	D	DR1	N/A	L	D	DR1	N/A	L	D	DR1	N/A	L	D
	02	West	M	S	SS	M	S	SS	50	M	S	SS	50	M	S	SS	40	M	S	SS	40	M	S
	03	Mud Flat	G	U	SS	G	S	SS	65	G	S	SS	60	G	S	SS	50	G	S	SS	50	G	S
	04	FFR	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
1006	01	Eiguren	X	S	FFR	X	S	FFR	N/A	X	S	FFR	N/A	X	S	FFR	N/A	X	S	FFR	N/A	X	S
1007	01	Arrigold FFR	?	?	FFR	?	S	FFR	0	?	S	FFR	0	?	S	FFR	0	?	S	FFR	0	?	S
1101	02	China Gulch Sdgs	G	U	DR2	X	U	DR2	65	G	U	DR2	60	X	U	DR2	50	X	U	SF	50	X	U
	04	Dry Creek Native	M	U	DR1	M	S	DR1	60	M	S	DR1	50	L	U	DR1	40	L	U	EX2	40	M	S
	05	Indian Fort	M	U	DR1	M	S	DR1	60	M	S	DR1	50	L	U	DR1	40	L	U	EX2	40	M	S

Appendix C - Table C-1, Pasture Specific Data
Proposed Grazing Systems, Maximum Allowable Utilization, Predicted Long-term Condition and Trend

Allot No.	Past No.	Pasture Name	Existing		Alternative 1			Alternative 2				Alternative 3				Alternative 4				Alternative 5			
			Condition	Trend	Grazing System	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend
	06	Skull Creek	L	S	DR1	L	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	07	Eastside	M	S	DR1	M	S	DR1	40	L	U	DR1	40	L	U	DR1	40	L	U	SS	40	M	S
	08	Rome South	M	S	DR2	L	U	DR2	50	L	U	DR2	50	L	U	DR2	40	L	U	SF	40	L	U
	09	Rome North	E	S	N00	E	S	N00	0	E	S	N00	0	E	S	N00	0	E	S	N00	0	E	S
	10	Crows Nest Res Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	11	Hardin Eps Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	12	Dry Creek Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	13	FFR	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
		Owyhee Springs Res	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
1102	01	Ambrose Maher	M	U	SS	M	D	SS	N/A	M	D	SS	N/A	M	D	SS	N/A	M	D	SS	N/A	M	D
1103	01	Jackies Butte	M	U	W0	L	U	W0	60	L	U	W0	50	L	U	W0	40	L	U	W0	40	L	U
1201	01	Frenchie North	M	S	EA	L	U	EA	50	L	U	EA	50	L	U	EA	40	L	U	EA	40	L	U
	02	Twelve Mile Sdg	X	U	SF	X	U	SF	65	X	U	SF	60	X	U	SF	50	X	U	SF	50	X	U
	03	Whitehorse N Sdg	X	U	RR2	X	S	RR2	40	X	U	RR2	40	X	U	RR2	40	X	U	RR2	40	X	U
	05	Dool-Jug	M	D	DF	L	U	DF	40	L	U	DR1	40	L	U	DF	0	L	U	DF	0	L	U
	06	Green Ponds	M	S	DF	L	U	DF	40	L	U	DR1	40	L	U	DF	0	L	U	DF	0	L	U
	07	Whitehorse-Dry Cr	M	S	DF	L	U	DF	40	L	U	DR1	40	L	U	DF	0	L	U	DF	0	L	U
	09	V Pasture	M	S	DF	L	U	DF	40	L	U	DR1	40	L	U	DF	0	L	U	DF	0	L	U
	10	Ore Canyon BC	M	S	DR1	M	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	11	Ore Canyon Sdg	X	U	DR1	X	S	DR1	65	X	S	DR1	60	X	S	DR1	50	X	U	DR1	50	X	U
	12	Schoolhouse Sdg	G	S	DR1	G	S	DR1	65	G	S	DR1	60	G	S	DR1	50	X	U	DR1	50	X	U
	13	Etchart Sdg	M	D	W0	L	U	W0	40	L	U	DF	40	L	U	W0	40	L	U	W0	40	L	U
	14	Jaca Sdg	X	S	SF	X	U	SF	65	X	U	SF	60	X	U	DF	50	X	U	SF	50	X	U
	15	McDermitt	M	S	EA	L	U	EA	50	L	U	EA	50	L	U	SS	40	M	S	EA	40	L	U
	16	Buckbrush	M	S	SF	L	U	SF	50	L	U	SF	50	L	U	SF	40	L	U	SF	40	L	U
	17	Angel Cnyn Sdg	G	S	SF	X	U	SF	65	G	U	SF	60	X	U	DF	50	X	U	SF	50	X	U
	18	Angel Cnyn Native	L	U	DF	L	U	DF	60	L	U	DF	50	L	U	DF	40	L	U	DF	40	L	U
	19	Blue Mountain	M	S	SS	M	D	SS	50	M	S	SS	50	M	S	SS	40	M	S	SS	40	M	S
	20	Basque Sdg W	X	S	RR2	X	S	RR2	65	X	S	RR2	60	X	S	RR2	50	X	U	RR2	50	X	U
	21	Basque Sdg E	X	U	RR2	X	S	RR2	65	X	S	RR2	60	X	S	DR1	50	X	U	RR2	50	X	U
	22	Sheep Corral BC	M	S	RR2	M	S	RR2	50	L	U	RR2	50	L	U	DR1	40	M	S	RR2	40	L	U
	23	Summit BC N	M	U	RR2	M	S	RR2	60	M	S	RR2	50	L	U	RR2	40	L	U	RR2	40	L	U
	24	Summit BC S	M	S	RR2	M	S	RR2	50	L	U	RR2	50	L	U	RR2	40	L	U	RR2	40	L	U
	25	Pronghorn	M	U	EA	L	U	EA	60	L	U	EA	50	L	U	EA	40	L	U	EA	40	L	U
	26	Overshoe Sdg	X	U	SS	X	D	DR5	65	X	S	DR5	60	X	S	DR5	50	X	S	DR5	50	X	S
	27	Jackson Cr N-Cascade	M	U	DR1	M	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	29	Jackson Creek S	M	D	EA	L	U	EA	40	L	U	EA	40	L	U	EA	40	L	U	EA	40	L	U
	30	Whitehorse Sdg S	X	U	RR2	X	S	RR2	65	X	S	RR2	60	X	S	RR2	50	X	U	RR2	50	X	U
	31	Frenchie S	M	S	RR3	M	D	RR3	50	M	D	RR3	50	M	D	RR3	40	M	D	RR3	40	M	D
	32	Fish Creek Sdg	G	S	RR3	G	D	RR3	65	G	D	RR3	60	G	D	RR3	50	G	D	RR3	50	G	D
	33	Doolittle Sp Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	34	L. Whitehorse Cr Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	35	Mules Ear Res Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	36	Whitehorse Cr Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	37	Blue Mtn Pit Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	38	Blue Mtn #4 Res Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	39	Harper Res Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	40	Dawson Res Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	41	Mud Spr Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	42	Schoolhouse Pit Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	43	Overshoe Guzzler Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	44	L. Whthrs Upland Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	45	Overshoe Sdg Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	46	Twelve Mile Test Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	49	Whitehorse Sdg Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	50	Twin Peaks Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	51	FFR	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
	52	Bobcat Gzzlr Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	N/A	?	U	EX0	N/A	?	U	EX0	N/A	?	U
	53	Coyote Gzzlr Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	N/A	?	U	EX0	N/A	?	U	EX0	N/A	?	U
	54	Dry Rdg Gzzlr Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	N/A	?	U	EX0	N/A	?	U	EX0	N/A	?	U
	55	V. Past Rip	?	?	DF	?	U	DF	N/A	?	U	DR1	N/A	?	S	EX0	N/A	?	U	EX0	N/A	?	U
	56	Green Ponds Rip	?	?	DF	?	U	DF	N/A	?	U	DR1	N/A	?	S	EX0	N/A	?	U	EX0	N/A	?	U
	57	Doolit "-" Jug Rip	?	?	DF	?	U	DF	N/A	?	U	DR1	N/A	?	S	EX0	N/A	?	U	EX0	N/A	?	U
	58	L. Whitehorse Rip	?	?	DF	?	U	DF	N/A	?	U	DR1	N/A	?	S	EX0	N/A	?	U	EX0	N/A	?	U

Appendix C - Table C-1, Pasture Specific Data
Proposed Grazing Systems, Maximum Allowable Utilization, Predicted Long-term Condition and Trend (Continued)

Allot No.	Past No.	Pasture Name	Existing		Alternative 1			Alternative 2				Alternative 3				Alternative 4				Alternative 5			
			Condition	Trend	Grazing System	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend
	59	Whitehorse Rip	?	?	DF	?	U	DF	N/A	?	U	DR1	N/A	?	S	EX0	N/A	?	U	EX0	N/A	?	U
1202	01	Sheepline BC	M	D	DF	L	U	DF	40	L	U	DF	40	L	U	DF	40	L	U	DF	40	L	U
	02	Payne	L	S	DF	L	U	DF	40	L	U	DF	40	L	U	SS	40	L	S	DF	40	L	U
	03	Indian Creek	M	U	DR1	M	S	DR1	N/A	M	S	DR1	N/A	M	S	DR1	N/A	M	S	DR1	N/A	M	S
	04	Cash Canyon	E	S	EA	E	U	EA	40	E	U	DR1	40	E	U	EX0	40	E	U	EX0	40	E	U
	05	Deafenbaugh	M	S	EA	L	U	EA	40	L	U	DR2	40	L	U	EX0	40	L	U	EX0	40	L	U
	06	Bretz Seeding	X	S	SF	X	U	SF	65	X	U	SF	60	X	U	SF	50	X	U	SF	50	X	U
	07	Flat Top Seeding	P	U	EA	F	U	EA	65	F	U	EA	60	F	U	EA	50	F	U	EA	50	F	U
	08	Bretz Pit Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	09	Air Strip Test Plot	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	10	FFR	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
	11	Deafenbaugh Rip	?	?	EA	?	U	EA	N/A	?	U	DR2	N/A	?	U	EX0	N/A	?	U	EX0	N/A	?	U
1203	05	Disaster Peak Sdg	X	U	RR2	X	S	RR2	65	X	S	RR2	60	X	S	SS	50	X	S	RR2	50	X	U
	06	Payne Creek Sdg	X	S	RR3	X	D	RR3	40	X	D	RR2	40	X	U	RR2	40	X	U	RR3	40	X	D
	07	Mine Creek Sdg	X	S	RR3	X	D	RR3	40	X	D	RR2	40	X	U	RR2	40	X	U	RR3	40	X	D
	08	Pinky	M	S	SS	M	D	SS	40	M	S	SS	40	M	S	RR2	40	L	U	SS	40	M	S
	10	Riser	M	S	RR3	M	D	RR3	50	M	D	RR3	50	M	D	RR2	40	L	U	RR3	40	M	D
	12	Dry Creek	M	S	RR3	M	D	RR3	40	M	D	DR1	40	L	U	RR3	0	M	D	RR3	0	M	D
	13	Turner	L	S	RR3	L	D	RR3	40	L	D	DR1	40	L	U	RR3	0	L	D	RR3	0	L	D
	14	Disaster Pk Test Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	15	FFR	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
	16	Dry Creek Rip	?	?	RR3	?	D	RR3	N/A	?	D	DR1	N/A	?	S	EX0	N/A	?	U	EX0	N/A	?	U
	17	Turner Rip	?	?	RR3	?	D	RR3	N/A	?	D	DR1	N/A	?	S	EX0	N/A	?	U	EX0	N/A	?	U
1204	01	Buckskin Sdg	X	S	RR2	X	S	RR2	65	X	S	DR1	60	X	U	DR1	50	X	U	RR2	50	X	U
	02	Red Mtn	M	S	RR2	M	S	RR2	40	L	U	DR1	40	L	U	RR2	40	L	U	RR2	40	L	U
	03	Willow Butte Sdg	F	U	RR2	F	S	RR2	65	F	S	DR2	60	G	U	DR1	50	F	S	RR2	50	G	U
	06	Willow Creek-Trout	F	U	SS	F	D	SS	40	F	S	DR1	40	G	U	SS	40	F	S	SS	40	F	S
	07	L. Whitehorse Cr Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	08	Willow Cr Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	09	FFR	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
	10	Willow Creek Rip	?	?	SS	?	D	DR1	N/A	?	S	DR1	N/A	?	S	EX0	N/A	?	U	EX0	N/A	?	U
	11	Red Mtn Rip	?	?	RR2	?	S	RR2	N/A	?	S	DR1	N/A	?	S	EX0	N/A	?	U	EX0	N/A	?	U
1301	01	Battle Cr N	X	S	EA	X	U	EA	65	X	U	EA	60	X	U	EA	50	X	U	EA	50	X	U
	02	Battle Cr S	X	U	EA	X	U	EA	65	X	U	EA	60	X	U	EA	50	X	U	EA	50	X	U
	03	Woolhawk	M	U	DR1	M	S	DR1	60	M	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	04	Battle Mtn	M	S	DR1	M	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	05	Rattlesnake	M	U	DR1	M	S	DR1	60	M	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	06	Deer Cr Sp	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	07	FFR	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
		Joe Spg Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	N/A	?	U	EX0	N/A	?	U	EX0	N/A	?	U
1302	01	Battle Mtn-Rttlsnk	L	U	DR1	L	S	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	03	Antelope Flat	M	D	EA	L	U	EA	40	L	U	EA	40	L	U	EA	40	L	U	EA	40	L	U
1303	01	Bankofier Sdg	X	S	SF	X	U	SF	65	X	U	SF	60	X	U	SF	50	X	U	SF	50	X	U
	02	High Peak	L	S	DR4	L	U	DR4	60	L	U	DR4	50	L	U	DR4	40	L	U	DR4	40	L	U
	03	Hanson Flat N	L	S	SS	L	D	SS	60	L	D	SS	50	L	S	SS	40	L	S	SS	40	L	S
	04	Hanson Flat South	L	S	DR1	L	S	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	05	FFR	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
	02	Andy Fife	M	U	DR2	L	U	DR2	50	L	U	DR2	50	L	U	DR2	40	L	U	DR2	40	L	U
	03	Lazy T	E	S	DR2	E	U	DR2	40	E	U	DR2	40	E	U	DR2	40	E	U	DR2	40	E	U
1305	01	Beber Sdg	X	S	EA	X	U	EA	65	X	U	EA	60	X	U	EA	50	X	U	EA	50	X	U
	02	Winter Area N	M	S	EA	L	U	EA	40	L	U	EA	40	L	U	EA	40	L	U	EA	40	L	U
1304	01	The Breaks	L	U	DR1	L	S	DR1	60	L	S	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	03	Bull Creek Sdg	G	U	EA	X	U	EA	65	G	U	EA	60	X	U	EA	50	X	U	EA	50	X	U
	06	Chimney Creek	M	S	DR1	M	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	07	Eiguren	M	S	DR1	M	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	08	Rattlesnk #2 Res Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	09	L. Grassy Guzzler Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	10	Chimney Guzzler Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
		FFR	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
1306	00	Coyote Holes Res Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	01	Peacock	M	U	RR4	L	U	RR4	60	L	U	RR4	50	L	U	RR4	40	L	U	RR4	40	L	U
	02	Twin Springs	M	U	RR4	L	U	RR4	60	L	U	RR4	50	L	U	RR4	40	L	U	RR4	40	L	U
	03	Sacramento Hill	M	U	RR4	L	U	RR4	60	L	U	RR4	50	L	U	RR4	40	L	U	RR4	40	L	U

Appendix C - Table C-1, Pasture Specific Data
Proposed Grazing Systems, Maximum Allowable Utilization, Predicted Long-term Condition and Trend (Continued)

Allot No.	Past No.	Pasture Name	Existing		Alternative 1			Alternative 2				Alternative 3				Alternative 4				Alternative 5			
			Condition	Trend	Grazing System	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend	Grazing System	% Util.	Condition	Trend
	05	Starvation Sdg	M	S	DR1	M	S	DR1	50	L	U	DR1	50	L	U	DR1	40	L	U	DR1	40	L	U
	06	Horse Hill	L	S	DF	L	U	DF	60	L	U	DF	50	L	U	DF	40	L	U	DF	40	L	U
	07	Lorribeau Holding	L	U	DF	L	U	DF	N/A	L	U	DF	N/A	L	U	DF	N/A	L	U	DF	N/A	L	U
	08	Scmnto Hill Test Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	09	Peacock Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	10	Bell Spr Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
		FFR	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
1307	01	Drummond Basin	M	S	EA	L	U	EA	50	L	U	DR1	50	L	U	DR1	40	L	U	EA	40	L	U
	02	Steer Canyon Sdg	G	S	DR5	G	S	DR5	65	G	S	DR1	60	X	U	DR1	50	X	U	DR5	50	G	S
	03	Pole Creek	E	S	DR1	E	D	DR1	40	E	S	DR1	40	E	U	DR1	40	E	U	DR1	40	E	S
	04	Louse Canyon	L	S	DR1	L	S	DR1	40	L	U	RR4	40	L	U	DR1	0	L	S	DR1	0	L	S
	06	Frenchman Creek	X	S	EA	X	U	EA	65	X	U	EA	60	X	U	EA	50	X	U	EA	50	X	U
	07	Indian Spr Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	08	W. Little Owyhee Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	09	Steer Cnyn Test Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	10	FFR	?	?	FFR	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S	FFR	N/A	?	S
	11	Jeff Res	?	?	DR1	?	S	DR1	N/A	?	S	EX0	N/A	?	U	EX0	N/A	?	U	EX0	N/A	?	U
	12	Louse Cnyn Rip	?	?	DR1	?	S	DR1	N/A	?	S	RR4	N/A	?	U	EX0	N/A	?	U	EX0	N/A	?	U
1308	01	Ten Mile Sdg	F	S	SS	F	D	SS	65	F	D	SS	60	F	D	SS	50	F	S	SS	50	F	S
	02	McDermitt Landfill	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
1401	01	Spring-Bull Flat	M	S	SS	M	D	SS	50	M	S	SS	50	M	S	SS	40	M	S	SS	40	M	S
	02	North	M	S	EA	L	U	EA	N/A	L	U	EA	N/A	L	U	EA	N/A	L	U	EA	N/A	L	U
	03	W. Little Owyhee Ex	?	?	EX0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U	EX0	0	?	U
	04	Junction Res	?	?	SS	?	D	SS	N/A	?	D	EX0	N/A	?	U	EX0	N/A	?	U	EX0	N/A	?	U

Key:

Grazing System	Yearly Sequence of Use
W0	Winter use every year
SS	Use during critical growth period every year
UNA	Inaccessible or Unallotted
EX0	Exclusion
EX2	Exclusion with use by wild horses
EA	Early Spring Every Year

Grazing System	Yearly Sequence of Use
SF	EA/DF every year
DF	Use after seed ripe every year
DR1	1 year SS/1 year DF
DR2	1 year EA/1 year DF
DR3	1 year SS/1 year winter
DR4	1 year EA or SS/2 years DF
RR1	1 year SS/1 year DF/1 year rest
RR2	1 year SS/1 year rest
RR3	2 or 3 years SS/1 year rest
RR4	1 or 2 years early spring/1 year

Condition - Native Range:

L = Late; M = Middle; E = Early; ? = No Data

Seedings:

X = Excellent; G = Good; F = Fair; P = Poor; ? = No Data

Trend:

U = Upward; S = Static; D = Downward; ? = No Data

Appendix D

Standard Procedures and Design Elements for Range Improvements

The following standard procedures and design elements would be adhered to under all alternatives in administering the grazing management program and constructing range improvements in the EIS area. Design elements have been standardized over time to mitigate adverse effects encountered during range improvement installations.

• Preparation of a site-specific environmental assessment prior to implementation of range improvements is required. Proposed range improvements may be modified or abandoned if this assessment indicates significant adverse environmental impacts cannot be mitigated or avoided.

• A wilderness inventory, required by the Federal Land Policy and Management Act, has been completed in the EIS area. All rangeland management activities in wilderness study areas will be consistent with th Interim Management Policy and Guidelines for Lands Under Wilderness Review unless and until the area is removed from this category. Impacts will be assessed before implementing management activities to ensure they meet guidelines.

• Every effort would be made to avoid adverse impacts to cultural resources.

A Class III intensive cultural resources inventory would be completed on all areas prior to any ground-disturbing activities. This would be part of the preplanning stage of a project and the results would be analyzed in the environmental assessment addressing the action (BLM Manual 8100, Cultural Resources Management). If significant cultural values are discovered, the project could be relocated, redesigned or abandoned. However, where that is not possible the BLM would consult with the State Historic Preservation Officer and the Advisory Council on Historic Preservation in accordance with the Programmatic Memorandum of Agreement (PMOA) by and between the Bureau, the Council and the National Conference of State Historic Preservation Officers, dated January 14, 1980, which sets forth a procedure for developing appropriate mitigative measures. This PMOA identifies procedures for compliance with Section 106 of the National Historic Preservation Act (1966) and Executive Order 11593, as implemented by 36 CFR Part 800.

• Prior to vegetation manipulation and development of range improvements, BLM requires a survey of the project site for plants and animals listed or under review for listing on Federal or official State lists of threatened and endangered species. If a project might affect any such species or its critical habitat, every effort would be made to modify, relocate or abandon the project in order to obtain a no effect determination. Consultation with the U.S. Fish and Wildlife Service would be initiated (50 CFR 402; Endangered Species Act of 1973, as amended) when BLM determines that a proposed action may affect Federally-listed plant or animal species. In addition, some plants in the Southern Malheur EIS area are considered by BLM as sensitive and are managed under the same procedures as plants under review for Federal listing.

• Surface disturbance at all project sites would be held to a minimum. Disturbed soil would be rehabilitated to blend into the surrounding soil surface and reseeded as needed with a mixture of grasses, forbs and browse as applicable to replace ground cover and reduce soil loss from wind and water erosion.

• All State of Oregon water-well regulations would be adhered to.

• All water developments will provide standing water for wildlife outside of troughs where a need is identified. Significant spring sources and associated trough overflow areas would be fenced. Ramps, rocks or floatboards would be provided in all water troughs for small birds and mammals to gain access to and/or escape from the water.

• Fence construction in antelope areas would be coordinated with Oregon Department of Fish and Wildlife. All other fences would be constructed in accordance with Bureau standards. Gates or cattleguards would be installed where fences cross existing roads with significant use. Fence lines would not be bladed or scraped.

• Vegetation manipulation projects would be designed using irregular patterns, untreated patches, etc., to provide for optimum edge effect for visual and wildlife. Layout and design would be coordinated with local Oregon Department of Fish and Wildlife biologists.

• Prescribed burning would be designed in accordance with the guidelines contained in the Oregon Department of Forestry's Smoke Management Program, which would prevent smoke from intruding into smoke-sensitive areas.

• Seeding would be accomplished by use of the rangeland drill in most cases. Broadcast seeding would occur on small disturbed areas,

rough terrain and rocky areas. Preparation for seeding (brush control) would be by burning or chemical means. Burning would use one or more of the following types of fire breaks: natural barriers, retardant lines, existin roads and/or bladed lines. Each fire would have its own prescription, to b based on the conditions needed (wind speed, air temperature, etc.) to burn the plant material within the project boundary to be burned. The chemical applied would be 2,4-D (low volatile formulation) using a water carrier at a rate of 2 pounds active ingredients per acre (3 pounds per acre if rabbitbrush is the target species). All applications of 2,4-D would be in accordance with the manufacturer's label, State regulations and BLM Manual 9220. A more thorough description of design features applicable to the proposal may be found in BLM's final environmental impact statement, Vegetative Management with Herbicides—Western Oregon. These design features are also applicable ineastern Oregon. BLM would determine seeding mixtures on a site specific basis, using past experience and recommendations of the Oregon State University Extension Service and Experiment Stations and/or Oregon Department of Fish and Wildlife. Anticipated increases in production through vegetation manipulation projects would not be allocated until seedings are established and ready for use. All seedlings would be deferred from grazing for at least two growing seasons to allow seedling establishment.

- It is anticipated that the existing road and trail system would provide access for range improvement construction.

- It is assumed that normal maintenance such as replacement of pipeline sections, fence posts and retreatment of vegetation manipulations would occur.

- A monitoring program would be developed to measure whether resource objectives were being met. Water quality monitoring would be initiated in accordance with Executive Orders 11991 and 12088, BLM Manual 7240, and Sections 208 and 313 of the Clean Water Act (P.L. 95-217, P.L. 92-500 as amended). Standard analytical methods detailed in Federal directives would be followed.

Studies would be established in representative riparian zones to determine changes in the habitat conditions and populations of fish and wildlife resulting from implementation. Such monitoring would comply with Executive Orders 11514 and 11990 and BLM Manual 6740.

Shrub utilization and trend studies would be continued or established on important browse ranges. Wildlife habitat would be monitored in cooperation with Oregon Department of Fish and Wildlife to determine the effectiveness of design features for vegetation manipulation and grazing systems.

Climate, actual use, utilization and trend studies would be continued in accordance with BLM Manuals 4412 and 4413 to evaluate vegetation changes. The data would then be used to assess progress toward achieving resource objectives and to recommend adjustments in the grazing system or stocking rate. The intensity of monitoring studies will vary depending on resource objectives and management proposals.

- If an evaluation supports an increase in livestock grazing use, the additional use would first be granted on a temporary basis. An evaluation of forage production and the temporary use granted must confirm the availability of additional forage before an increase in use would become permanent. Grazing management would be revised if the evaluation determines that the specific objectives established for the allotments are not being achieved. Other revisions may include changes in the amount of livestock use permitted, grazing system, period of use, or any combination of these. Prior to these changes, further environmental assessment would be completed.

- Each operator would be issued term permits which specify allotment, period of use, and numbers and kind of livestock. If unauthorized use should occur, action would be taken by BLM to eliminate it in accordance with regulations in 43 CFR 4150.

Table D-1 Range Improvement Proposals

Allot. No.	Allotment Name	Alternative 2								Alternative 3							
		Fence (Miles)	Spring Dev.	Pipe (Miles)	Wells	Reser-voirs	Water Holes	Brctl/ Seed[1]	Brctl Only[1]	Fence (Miles)	Spring Dev.	Pipe (Miles)	Wells	Reser-voirs	Water Holes	Brctl/ Seed[1]	Brctl Only[1]
0300	Skull Springs	4.0	9	0.0	0	48	0	1,020	24,240	15.0	6	0.0	0	11	0	0	0
0303	Turnbull Lake	0.0	2	0.0	0	9	0	0	20,056	0.0	2	0.0	0	9	0	0	0
0304	Black Butte	1.0	2	0.0	0	15	0	0	2,240	0.0	2	0.0	0	4	0	0	2,240
0305	Bridge Creek	0.0	2	0.0	0	4	0	0	3,240	0.0	1	0.0	0	4	0	0	3,240
0306	Jonesboro	0.0	2	0.0	0	10	0	0	0	0.0	2	0.0	0	10	0	0	0
0307	Boney Basin	0.0	0	0.0	0	4	0	0	0	0.0	0	0.0	0	1	0	0	0
0400	Harper Basin	8.0	10	3.0	0	13	0	8,360	53,460	11.0	12	0.0	0	11	0	0	1,280
0407	Little Valley	0.0	0	0.0	0	0	0	720	49,460	0.0	0	0.0	0	0	0	0	0
0500	Mahogany	4.0	21	4.0	0	12	0	13,600	0	10.0	21	6.0	0	12	0	0	22,660
0501	Blackjack	0.0	1	0.0	0	2	0	0	0	0.0	1	0.0	0	2	0	0	0
0502	Derrick	0.0	0	0.0	0	0	0	0	0	0.0	0	0.0	0	0	0	0	0
0603	McEwen	0.0	0	0.0	0	9	0	0	0	0.0	0	0.0	0	9	0	0	0
0701	Sheepheads	0.0	1	5.0	0	16	0	0	7,230	0.0	1	0.0	0	16	0	0	0
0801	Barren Valley Common	48.0	3	10.0	7	1	3	0	0	9.0	3	0.5	1	1	3	0	0
0902	West Cow Creek	9.0	0	33.0	2	2	0	17,478	6,451	8.5	0	0.0	0	2	0	14,716	6,451
0903	East Cow Creek	12.0	3	0.0	0	5	2	0	3,523	5.5	3	0.0	0	5	0	0	789
0904	Bogus Creek	1.6	0	0.0	0	1	0	0	0	0.0	0	0	0	0	0	0	0
0905	Oliver	2.5	0	0.0	0	2	0	0	0	2.5	0	0.0	0	2	0	0	0
1001	Arock	9.5	0	5.8	0	13	0	921	6,024	7.0	0	0.0	0	13	2	0	5,043
1002	Antelope	1.0	0	2.3	0	1	0	2,990	3,739	0.0	0	0.8	0	1	1	0	748
1003	Wroten	0.0	0	0.0	0	1	0	0	7,316	0.0	0	0.0	0	1	0	0	0
1004	Willow Creek	10.0	2	4.5	1	11	0	7,040	7,067	6.5	2	0.0	0	11	1	3,387	411
1005	Raburn	1.5	0	0.0	0	1	0	683	0	0.0	0	0.0	0	1	0	0	0
1101	Jackies Butte	4.0	0	15.0	2	6	0	23,097	11,577	0.0	0	3.5	1	6	0	0	11,577
1103	Jackies Butte	0.0	0	0.0	1	0	0	3,934	0	0.0	0	0.0	0	0	0	0	0
1201	Fifteen Mile Common	37.0	4	20.5	1	1	0	19,461	17,358	25.5	4	9.5	0	1	0	16,592	6,846
1202	McCormick	5.5	1	0.0	0	2	0	1,400	9,575	5.5	1	0.0	0	2	0	0	9,575
1203	Zimmerman	4.5	0	0.0	0	2	0	0	1,356	3.0	0	0.0	0	2	0	0	1,356
1204	Willow Creek	12.0	0	5.0	1	0	0	3,627	6,686	4.0	0	5.0	1	0	0	0	0
1301	Gilbert	0.0	1	4.0	0	0	0	0	0	0.0	1	0.0	0	0	0	0	0
1302	Echave	0.0	0	0.0	0	2	0	0	0	0.0	0	0.0	0	2	0	0	0
1303	Sherburn	0.0	4	0.0	0	0	0	0	3,945	0.0	0	0.0	0	0	0	0	0
1304	Albisu-Alcorta	0.0	2	0.0	0	2	0	2,279	0	0.0	2	0.0	0	2	0	0	0
1305	Eiguren	0.0	0	1.5	0	0	0	0	4,712	0.0	0	0.0	0	0	0	0	4,712
1306	Campbell	0.0	0	2.0	0	4	0	0	0	0.0	0	0.0	0	3	0	0	0
1307	Louse Canyon Common	2.0	2	5.0	0	2	0	10,169	0	2.0	2	0.0	0	2	0	0	0
1401	Anderson	1.5	0	0.0	0	0	0	0	3,794	1.5	0	0.0	0	0	0	0	0
1402	Star Valley Common	19.0	0	1.0	0	2	1	0	0	6.5	0	0.0	1	2	1	0	2,653

[1] Units shown are in acres.

Appendix E

Determination of Existing and Predicted Range and Forage Condition and Trend

Determination of Existing Range and Forage Conditions

The determination of existing range condition was based on the relative degree to which the kinds, proportions, and amounts of plants in each plant community resemble that of the potential plant community for the site. (Procedures as outlined in the Soil Conservation Service (SCS) National Range Handbook.) Descriptions of each range site are those developed for the Oregon Automated Ecological Site Information System (OAESIS). OAESIS site descriptions were compiled by consolidating SCS range sites for Oregon.

Four range condition classes were used to express the degree to which the composition of the present plant community reflects that of climax. They are:

Range Condition Class	Percent of Present Plant Community that is Climax for the Range Site
Climax	76-100
Late	51-75
Middle	26-50
Early	0-25

Average range condition of a pasture may not reflect the condition of livestock concentration areas or areas which receive little or no use.

Forage condition was determined for seedings only. This was calculated by comparing the forage species composition of all seedings. Ranking was divided into four increments from poor to excellent as judged by amount of crested wheatgrass present. Native range sites in the EIS area generally have greater composition of grasses and less shrubs as they approach climax, thus producing more useable forage for livestock in the higher range condition classes.

Determination of Predicted Range Condition

The determinations of predicted condition are based on the discussion of vegetation allocation and grazing systems in Chapter 3. Variables such as large year-to-year fluctuations in precipitation make a precise quantification of impacts to vegetation impossible. The impact analysis methodology, therefore, produces a result which is most useful as a relative comparison between alternatives rather than as an absolute prediction of the impacts of implementing any one alternative.

The following analysis of impacts to range condition on Allotment 1304 illustrates for one allotment how the components of the alternatives would result in changes in long-term range conditions summarized in Table 3-1.

Approximately one-half of the 12,843 acres of public land in Allotment 1304 is currently used in spring every year. The remainder is deferred until later in the season. Existing range conditions are late (7,152 acres), middle (2,893 acres) and early (2,798 acres). The existing level of livestock use is within the grazing capacity.

Range improvements called for under emphasize livestock alternative include two reservoirs, two spring developments, 533 acres of brush control and 2,279 acres of seeding. The grazing system under the preferred alternative is deferred rotation on 12,843 acres.

Significant increases in desirable forage species are expected to result from the above proposal for four reasons:

- utilization of forage would be in a more uniform pattern due to the increased availability of stockwater, thus reducing the size of heavy use areas;

- storage of carbohydrate reserves by key herbaceous species would occur in at least two out of three years on native range and yearly o the seeding under the deferred rotation system.

- removal of brush competition on 533 acres, would allow herbaceous species the opportunity to increase.

- seeding crested wheatgrass on 2,279 acres would allow heavier early season use in the seeded pasture to defer the native range pastures.

Determination of Trend of Range Condition

The present range condition does not indicate whether the plant community is improving or deteriorating in relation to its potential. Trend is a determination for assessing what is currently happening to the plant community. The present range condition is a result of a sustained trend over a period of time.

Trend in the EIS area was determined by observed apparent trend and permanent trend study plots located throughout the area. Apparent trend is a professional judgement rating based on several indicators such as plant vigor, reproduction of key species and soil loss. This trend rating was correlated with permanent trend study plot data to give a final trend rating for each pasture.

Determination of Predicted Trend in Range Condition

Predictions of long term trend in range condition were based primarily on proposed grazing systems at the pasture level. Systems which allowed key forage plants the opportunity to complete the stages of growth would result in upward trend. Trend was predicted to be downward on areas which would be grazed under systems which would not allow key forage species the opportunity to complete growth. Existing condition or trend was not a factor in determining long term predicted trend.

Appendix F

Scientific Names of Plants Mentioned in the EIS

alder	*Alnus ssp.*
alfalfa	*Medicago sativa*
basin wildrye	*Elymus cinereus*
big sagebrush	*Artemisia tridentata*
bitterbrush	*Purshia tridentata*
bluebunch wheatgrass	*Agropyron spicatum*
bottlebrush squirreltail	*Sitanion hystrix*
buckwheat	*Eriogonum spp.*
bulrush	*Scirpus spp.*
cheatgrass	*Bromus tectorum*
chokecherry	*Prunus virginiana*
creek dogwood	*Cornus stolonifera*
creeping wildrye	*Elymus triticoides*
crested wheatgrass	*Agropyron cristatum*
dock	*Rumex spp.*
greasewood	*Sarcobatus vermiculatus*
Idaho fescue	*Festuca idahoensis*
junegrass	*Koeleria cristata*
Kentucky bluegrass	*Poa pratensis*
knotweed	*Polygonum spp.*
low sagebrush	*Artemisia arbuscula*
mountain bromegrass	*Bromus marginatus*
mountain mahogany	*Cercocarpus ledifolius*
needlegrass	*Stipa spp.*
Nevada bluegrass	*Poa nevadensis*
pondweed	*Potamogeton spp.*
quaking aspen	*Populus tremuloides*
rabbitbrush	*Chrysothamnus spp.*
rush	*Juncus spp.*
saltgrass	*Distichlis spp.*
Sandberg's bluegrass	*Poa sandbergii*
sedge	*Carex spp.*
shadscale	*Atriplex confertifolia*
silver sagebrush	*Artemisia cana*
spiny hopsage	*Grayia spinosa*
smartweed	*Polygonum spp.*
Thurber's needlegrass	*Stipa thurberiana*
western juniper	*Juniperus occidentalis*
wild rose	*Rosa spp.*
willow	*Salix spp.*

Appendix G

Riparian Habitat Evaluation Methodologies

Riparian Ecological Potential

The method for determining site potential, described in Crouse and Kindschy (1982) is based on the physical ability of a riparian zone to support various vegetal layers. For example, physical characteristics such as low summer flows, stream channel scour and rocky soils can severely limit the capability of streams to support riparian vegetation.

Physical factors influencing riparian ecological potential have been organized into keys for field use. These keys identify the plant species most commonly associated with stream and reservoirs of certain physical characteristics. After using the keys to predict the potential riparian community of a stream or reservoir, an investigator can more accurately classify the present condition of the riparian habitat.

Key for Assessing Riparian Ecological Potential of Streams

1a. Stream flow intermittent

2a. Water not in soil all year. . . **Mullein, low sagebrush, biscuit root** (low ecological potential)

2b. Water in soil all year

3a. Stream gradient less than 1%; dry in mid-summer except for isolated pools. . . **Dense mats of sedges, grasses, and forbs around pools; few or no woody species** (low ecological potential)

3b. Stream gradient greater than 1%. . . **Herbaceous sage, mullein, sparse willow and other shrubs** (low ecological potential)

1b. Stream flow perennial

4a. Stream flow does not vary seasonally (springfed)

5a. Soil highly alkaline. . . **Alkali bullrush, greaswood, buffaloberry, salt cedar** (low/medium ecological potential)

5b. Soil not highly alkaline. . . **Densely matted sedges, forbs, grasses; cattails; few or no woody species** (low ecological potential)

4b. Stream flow varies seasonally

6a. Water level fluctuations extreme; severe scouring common. . . **Vegetation limited to sparse stands of grasses, forbs and sedges; woody plants found only in areas protected from scouring** (low ecological potential)

6b. Water level fluctuations moderate

7a. Soil extremely rocky; gradient generally greater than 5%. . . **Narrow band of willow, mock orange, chokecherry, sparse stands of grasses and forbs** (medium ecological potential)

7b. Soil fine in texture; gradient generally less than 5%. . . **Tree willow, cottonwood, alder, aspen (above 1500 m). dogwood, mock orange and other shrubs, dense stands of grasses, sedges and forbs** (high ecological potential)

Riparian Vegetation Improvement Potential

Riparian vegetation improvement potential is a measure of the difference between the riparian ecological potential and present plant community. Vegetative, edaphic, topographic and climatic conditions are considered.

Low Improvement Potential - Little increase in vegetative cover or key species composition is possible within 15 years. Riparian areas have a low improvement potential due to either:

- natural limiting factors such as a lack of soil or water, channel scour, soil alkalinity.
- a climax or near-climax vegetation community is present.

Medium Improvement Potential - Some increase in vegetation cover or key species is possible within 15 years. These areas have the ability to support dense stands of trees, shrubs, and herbaceous species, but are lacking part of the tree and/or shrub component of the potential plant community. In a few areas with medium improvement potential natural factors limit the amount of possible vegetation increase.

High Improvement Potential - Large increases in vegetation cover and composition are possible within 15 years. Areas with high improvement potential have the ability to support dense stands of trees, shrubs and herbaceous species, but are currently lacking the shrub and/or tree components of the community.

Criteria for Evaluating Stream Conditions, Trend and Potential for Fisheries Habitat

Fishery Habitat Condition

Stream fisheries habitat ratings for game fishes, primarily trout, were obtained by walking along streams and documenting their physical and biological characteristics every one-quarter mile. Some factors measured and rated were channel stability, stream bank damage, physical habitat condition, water quality and aquatic insects. Written observations were supported with color photos. Each one-quarter mile section was given an overall rating based on the following:

- **Poor** - Stream bottom heavily silted; shade lacking; water temperatures too warm for trout production. Some areas are rated poor are naturally lacking other critical components such as pools, adequate flow and instream cover.

- **Fair** - Stream bottom silted, shade is limited, water temperatures too warm for trout. Habitat components such as adequate flow, pools, and instream cover are naturally scarce in some areas rated fair.

- **Good** - Slight siltation of streambottom, shade adequate, water temperatures suitable for trout. Pools common, stream flow adequate, instream cover common.

- **Excellent** - Streambottom free of siltation, shade abundant, water temperatures suitable for trout. Pool habitat, cover and stream flow are ideal for supporting maximum trout production.

Fishery Habitat Trend

Some streams had previously been surveyed in the 1960's so trend was determined by comparing past and present habitat conditions. On other streams, habitat trend was estimated by considering evidence of recent siltation, reproduction of woody key species, and streambank stability.

Fishery Habitat Improvement Potential

Fishery habitat improvement potential is a measure of the difference between potential and present fish habitat condition. Fishery habitat can be improved for trout production by increasing the amount of streamside riparian vegetation and enhancing natural habitat components such as developing pools, increasing stream flow and providing instream cover.

Criteria for Evaluating Wildlife Habitat Condition and Trend Along Streams

Wildlife Habitat Condition

Wildlife habitat condition was determined using a numerical rating system that evaluated the diversity of vegetative structure and food resources available to terrestral wildlife; topographic features such as cliffs and water availability were also considered. The following ratings were assigned:

- **Excellent** - Three or more vegetal layers available, including grass/forbs, shrubs, and trees; perennial water abundant; food sources, such as seed, fruits, leaves, grass, insects, etc., abundant; special habitat features including cliffs, beaver meadows, snags, etc., are available.

- **Good** - Three vegetal layers, but not including a shrub/tree or tree (above 20 ft.) layer; seed and fruit sources are available; special habitat features are available.

- **Fair** - One vegetal layer; few food sources available; spring water flow only; few special habitat features.

- **Poor** - One vegetal layer or no vegetation present; few or no food sources available; water subsurface or extremely ephermeral; few or no special habitat features available.

Wildlife Habitat Trend

Wildlife habitat trend reflects apparent changes in the structure and diversity of riparian vegetation:

- **Up** - Abundant young plants habitat diversity and structure increasing.

- **Static** - Mature plants with little reproduction.

- **Down** - Dead or dying mature plants with little or no reproduction; reducing struture and habitat diversity.

Appendix G, Table G-1 Streamside Riparian Habitat - Predicted Trend and Condition

						Alt. 1 No Action		Alt. 2 Emphasize Livestock			Alt. 3 Preferred Alternative			Alt. 4 Emphasize Non Livestock			Alt. 5 Emphasize Wild Horses		
Streams	Allot	Miles	Acres	Exist. Cond.	Grazing System	Cond.	Trend	Grazing System	Cond.	Trend	Grazing System	Cond.	Trend	Grazing System	Cond.	Trend	Grazing System	Cond.	Trend
ANTELOPE CR[1]	1201	6.75	6.0	E	DF	G	D	DF	G	D	DF	G	D	EX1	E	U	EX1	E	U
ANTELOPE CR[1]	1201			G	DF	G	S	DF	G	S	DF	G	S	EX1	E	U	EX1	E	U
ANTELOPE CR[1]	1201			G	DF	F	D	DF	F	D	DF	F	D	EX1	E	U	EX1	E	U
ANTELOPE CREEK[2]	1306	9.50	8.1	G	RR4	G	S	RR4	G	S	RR4	G	S	RR4	G	S	RR4	G	S
BASIN CREEK	0400	6.00	18.1	?	DR4	?	?	DR4	?	?	DR4	?	?	DR4	?	?	DR4	?	?
BIRCH CR	0506	2.00	6.1	?	SS	?	?	SS	?	?	SS	?	?	SS	?	?	SS	?	?
BLUE CANYON	0500	3.00	9.1	?	W	?	?	W	?	?	W	?	?	W	?	?	W	?	?
CAMP CREEK	0300	2.00	6.1	?	RR2	?	?	DR1	?	?	DR1	?	?	EX1	?	?	EX1	?	?
CARTER CR	0500	3.00	10.7	E	DR1	G	D	RR4	E	S	RR4	E	S	RR4	E	S	RR4	E	S
CARTER CR	0500			G	DR1	F	D	RR4	E	U	RR4	E	U	RR4	E	U	RR4	E	U
CARTER CR	0500			G	DR1	F	D	RR4	G	S	RR4	G	S	RR4	G	S	RR4	G	S
CARTER CR	0500			G	SS	F	D	EA	E	U	EA	E	U	EA	E	U	S	E	U
CHEROKEE CREEK	1203	3.00	9.0	F	SS	P	D	SS	P	D	SS	P	D	RR2	F	S	SS	P	D
COTTONWD CR[1]	1201	4.75	16.5	F	DF	P	D	DF	P	D	DF	P	D	EX1	E	U	EX1	E	U
COTTONWOOD CR[3]	1202	2.25	2.7	G	EA	E	U	EA	E	U	EA	E	U	EX1	E	U	EX[illegible]	E	U
COTTONWOOD CR[3]	1202			F	EA	G	U	EA	G	U	EA	G	U	EX1	E	U	EX1	E	U
COTTONWOOD CREEK[4]	0300	16.00	28.4	F	DR1	F	S	DR1	F	S	DR1	F	S	DR1	F	S	DR1	F	S
COTTONWOOD CREEK[4]	0300			F	DR1	F	S	DR1	P	D	DR2	F	S	DR2	F	S	DR2	F	S
COTTONWOOD CREEK[4]	0300			F	EA	F	S	DR1	F	S	DR1	F	S	DR1	F	S	DR1	F	S
COTTONWOOD CREEK[4]	0300			F	RR2	F	S	DR1	F	S	DR2	F	S	DR2	F	S	EX1	G	U
COTTONWOOD CREEK[4]	0300			F	RR2	F	S	DR1	F	S	DR2	F	S	EX1	G	U	EX1	G	U
COTTONWOOD CREEK[4]	0300			F	RR2	F	S	DR1	P	D	DR2	F	S	EX1	G	U	EX1	G	U
COTTONWOOD CREEK[4]	0300			P	RR2	P	S	DR1	P	D	DR2	P	S	EX1	G	U	EX1	G	U
COTTONWOOD CREEK[4]	0400	0.40	1.2	F	SF	F	S	SS	F	S	SS	F	S	SS	F	S	SS	F	S
COVE CR	0500	5.00	15.1	?	DR1	?	?	DR1	?	?	DR4	?	?	DR4	?	?	DR4	?	?
COVE CR	0500			?	DR1	?	?	DR1	?	?	DR1	?	?	DR1	?	?	DR1	?	?
CROOKED CR	0801	3.00	6.3	E	EA	E	S	EA	E	S	EA	E	S	EA	E	S	EA	E	S
CROOKED CR	0801			G	EA	E	U	EA	E	U	EA	E	U	EA	E	U	EA	E	U
CROOKED CR	0801			G	SS	P	D	SS	P	D	SS	P	D	SS	P	D	SS	P	D
DOG CR	0500	3.00	9.1	?	DR1	?	?	DR1	?	?	DR1	?	?	DR1	?	?	DR1	?	?
DOG CR	0500			?	EA	?	?	SS	?	?	SS	?	?	SS	?	?	SS	?	?
DOOLITTLE CREEK	1201	6.00	18.0	G	DF	F	D	DF	F	D	DF	F	D	EX1	E	U	EX1	E	U
DOOLITTLE CREEK	1201			F	DF	P	D	DF	P	D	DF	P	D	EX1	E	U	EX1	E	U
DRY CR	0400	4.50	17.9	E	DR4	G	D	DR2	G	D	DR2	G	D	EX1	E	U	EX1	E	U
DRY CR	0400			G	DR4	G	S	DR2	G	S	DR2	G	S	EX1	E	U	EX1	E	U
DRY CR	0400			G	DR4	F	D	DR2	F	D	DR2	F	D	EX1	E	U	EX1	E	U
DRY CR	0400			F	DR4	F	S	DR2	F	S	DR2	F	S	EX1	E	U	EX1	E	U
FIFTEEN MILE CR	1201	11.00	33.0	G	DF	F	D	DF	F	D	DF	F	D	EX1	E	U	EX1	E	U
FIFTEEN MILE CR	1201			F	DF	P	D	DF	P	D	DF	P	D	EX1	E	U	EX1	E	U
FISH CR	0500	1.50	4.5	?	DR1	?	?	DR1	?	?	DR1	?	?	DR1	?	?	DR1	?	?
FISH CREEK	1201	5.00	15.0	G	DF	F	D	DF	F	D	DF	F	D	EX1	E	U	EX1	E	U
FISH CREEK	1201			G	RR3	F	D	RR3	F	D	RR3	F	D	RR3	E	U	RR3	E	U
GOLD CREEK	0300	4.50	18.2	E	RR4	E	S	DR1	G	D	DR2	E	S	DR2	E	S	DR2	E	S
GOLD CREEK	0300			G	RR4	E	U	DR1	F	D	DR2	G	S	DR2	G	S	DR2	G	S
GOLD CREEK	0300			G	RR4	G	S	DR1	G	S	DR2	G	S	DR2	G	S	DR2	G	S
GRANITE CREEK	0300	2.00	6.0	F	W	?	?	W	?	?	DR1	?	?	DR1	?	?	DR1	?	?
HUNTER CR	0307	2.00	6.1	?	SS	?	?	DR1	?	?	DR1	?	?	DR1	?	?	DR1	?	?
INDIAN CR	1202	11.00	21.5	G	EA	E	U	EA	E	U	EA	E	U	EX1	E	U	EX1	E	U
INDIAN CR	1202			G	EA	G	S	EA	G	S	EA	G	S	EX1	E	U	EX1	E	U
INDIAN CR	1202			F	EA	G	U	EA	G	U	EA	G	U	EX1	E	U	EX1	E	U
INDIAN CR	1202			P	EA	F	U	EA	F	U	EA	F	U	EX1	G	U	EX1	G	U
INDIAN CR	1202			P	EA	F	S	EA	F	U	EA	F	U	EX1	G	U	EX1	G	U
JORDAN CR	UNA	2.00	5.5	G	UNA	G	S	UNA	G	S	UNA	G	S	UNA	G	S	UNA	G	S
KEENEY CREEK	0400	8.00	24.0	?	DR4	?	?	DR4	?	?	DR4	?	?	DR4	?	?	DR4	?	?
L CROWLEY CR	0300	1.00	3.0	?	DR1	?	?	DR1	?	?	DR1	?	?	DR1	?	?	DR1	?	?
L WHITEHORSE CR	1204	8.90	10.5	E	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U
L WHITEHORSE CR	1204			G	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U
L WHITEHORSE CR	1204			G	RR2	G	U	RR2	G	U	DR2	G	U	EX1	E	U	EX1	E	U
L WHITEHORSE CR	1204			G	RR2	G	S	RR2	G	S	DR2	G	S	EX1	E	U	EX1	E	U
L WHITEHORSE CR	1204			F	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U
L WHITEHORSE CR	1204			F	RR2	F	U	RR2	F	U	DR2	F	S	EX1	E	U	EX1	E	U
L WHITEHORSE CR	1204			F	RR2	F	S	RR2	F	S	DR2	F	S	EX1	E	U	EX1	E	U
L WHITEHORSE CR	1204			P	RR2	P	S	RR2	P	S	DR2	P	S	EX1	E	U	EX1	E	U
L WHITEHORSE CR	1204			P	RR2	P	D	RR2	P	D	DR2	P	D	EX1	G	U	EX1	G	U
LINE CANYON CR	1203	3.25	5.6	F	RR3	P	D	RR3	P	D	SS	P	D	EX1	E	U	EX1	E	U
LITTLE OWYHEE RIVER	1307	28.75	32.8	G	DR1	G	S	DR1	G	S	SS	G	S	EX1	E	U	EX1	E	U
LITTLE OWYHEE RIVER	1307			G	DR1	F	D	DR1	F	D	SS	F	D	EX1	E	U	EX1	E	U
LITTLE OWYHEE RIVER	1307			G	DR1	G	S	DR1	G	S	DR1	G	S	DR1	G	S	DR1	G	S
LITTLE OWYHEE RIVER	1307			F	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U
LITTLE OWYHEE RIVER	1307			F	DR1	P	D	DR1	P	D	SS	P	D	EX1	E	U	EX1	E	U
LITTLE OWYHEE RIVER	1307			P	DR1	P	S	DR1	P	S	SS	P	S	EX1	F	U	EX1	F	U
LITTLE OWYHEE RIVER	1307			P	DR1	P	D	DR1	P	D	SS	P	D	EX1	G	U	EX1	G	U

Appendix G, Table G-1 Streamside Riparian Habitat - Predicted Trend and Condition (Continued)

				Alt. 1 No Action			Alt. 2 Emphasize Livestock			Alt. 3 Preferred Alternative			Alt. 4 Emphasize Non Livestock			Alt. 5 Emphasize Wild Horses		
Streams	Allot	Miles	Acres	Exist. Cond.	Grazing System	Cond.	Trend	Grazing System	Cond.	Trend	Grazing System	Cond.	Trend	Grazing System	Cond.	Trend	Grazing System	Cond.	Trend
MAHOGANY CR	0500	0.75	0.9	E	DR1	G	D	EA	E	S	EA	E	S	EX1	E	S	EX1	E	S
MAHOGANY CR	0500			G	DR1	F	D	EA	G	S	EA	G	S	EX1	G	S	EX1	G	S
MALHEUR RIVER	UNA	2.50	15.2	F	UNA	F	S	NA	F	S	NA	F	S	NA	F	S	NA	F	S
MALHEUR RIVER	0300	0.30	1.8	F	RR2	F	S	DR1	F	S	DR2	F	S	DR2	F	S	EX1	F	U
MALHEUR RIVER	0304	5.40	32.8	F	DF	F	S	DF	F	S	DR2	F	S	DR2	F	S	DR2	F	S
MALHEUR RIVER	0304			F	DR1	?	?	DR1	?	?	DR1	?	?	DR1	?	?	EX1	?	U
MALHEUR RIVER	0304			F	EA	F	S	DR1	F	S	DR2	F	S	DR2	F	S	DR2	F	S
MALHEUR RIVER	0304			F	RR2	F	S	DR1	F	S	DR2	F	S	DR2	F	S	DR2	F	S
MALHEUR RIVER	0410	1.20	7.3	F	FFR	F	S	FFR	F	S	FFR	F	S	FFR	F	S	FFR	F	S
MC DERMITT CR	1202	3.00	8.3	F	EA	G	U	EA	G	U	EA	G	U	EX1	E	U	EX1	E	U
MC DERMITT CR	1203	11.75	46.9	G	RR3	F	D	RR3	F	D	SS	P	D	EX1	E	U	EX1	E	U
MC DERMITT CR	1203			F	RR3	P	D	RR3	P	D	SS	P	D	EX1	E	U	EX1	E	U
MC DERMITT CR	1203			P	RR3	P	D	RR3	P	D	SS	P	D	EX1	G	U	EX1	G	U
MINE CREEK	1203	3.00	9.0	F	RR3	P	D	RR3	P	D	RR2	F	S	RR2	F	S	RR3	P	D
NEGRO ROCK CR	0400	4.60	13.9	?	W	?	?	W	?	?	DR1	?	?	DR1	?	?	DR1	?	?
NF SQUAW CREEK	0300	6.25	19.1	E	RR4	E	S	DR1	G	D	DR2	E	S	DR2	E	S	DR2	E	S
NF SQUAW CREEK	0300			G	RR4	G	S	DR1	F	D	DR2	G	S	DR2	G	S	DR2	G	S
NF SQUAW CREEK	0300			F	RR4	G	U	DR1	P	D	DR2	F	S	DR2	F	S	DR2	F	S
NF SQUAW CREEK	0300			F	RR4	F	S	DR1	P	D	DR2	F	S	DR2	F	S	DR2	F	S
OLD MAIDS CR	0500	2.50	7.6	?	DR1	?	?	DR1	?	?	DR1	?	?	DR1	?	?	DR1	?	?
OLD MAIDS CR	0500			?	SS	?	?	SS	?	?	SS	?	?	SS	?	?	SS	?	?
OREGON CAN CR	1201	10.75	7.3	E	DF	G	D	DF	G	D	DF	G	D	EX1	E	U	EX1	E	U
OREGON CAN CR	1201			G	DF	F	D	DF	F	D	DF	F	D	EX1	E	U	EX1	E	U
OREGON CAN CR	1201			F	DF	P	D	DF	P	D	DF	P	D	EX1	E	U	EX1	E	U
OREGON CAN CR	1201			F	DF	P	D	DF		D	DF	P	D	EX1	G	U	EX1	G	U
OREGON CAN CR	1201			P	DF	P	D	DF	P	D	DF	P	D	EX1	G	U	EX1	G	U
OREGON CANYON CR	1201	0.75	0.8	G	DF	F	D	DF	F	D	DF	F	D	EX1	E	U	EX1	E	U
OWYHEE RIVER	UNA	0.20	1.8	G	UNA	G	S	UNA	G	S	UNA	G	S	UNA	G	S	UNA	G	S
OWYHEE RIVER	0303	1.50	36.4	F	RR2	F	S	DR1	P	D	DR1	P	D	DR1	P	D	DR1	P	D
OWYHEE RIVER	0400	5.80	140.5	G	DR1	F	D	DR1	F	D	EX1	E	U	EX1	E	U	EX1	E	U
OWYHEE RIVER	0400			F	DR2	F	S	DR2	F	S	DR2	F	S	DR2	F	S	DR2	F	S
OWYHEE RIVER	0408	1.30	31.5	F	SS	P	D	SS	P	D	SS	P	D	SS	P	D	SS	P	D
OWYHEE RIVER	0502	1.00	24.2	G	EX1	G	S	EX1	G	S	EX1	G	S	EX1	G	S	EX1	G	S
OWYHEE RIVER	0506	0.50	12.1	F	SS	P	D	SS	P	D	SS	P	D	SS	P	D	SS	P	D
OWYHEE (ROME-RSRV)	UNA	41.00	981.0	G	UNA	G	S	UNA	G	S	UNA	G	S	UNA	G	S	UNA	G	S
OWYHEE (3 FKS-ROME)	UNA	35.00	840.0	G	UNA	G	S	UNA	G	S	UNA	G	S	UNA	G	S	UNA	G	S
PAYNE CREEK	1203	2.50	7.5	F	RR3	P	D	RR3	P	D	RR2	F	S	RR2	F	S	RR3	P	D
POLE CREEK	1307	4.75	1.1	G	DR1	G	S	DR1	G	S	SS	G	S	EX1	E	U	EX1	E	U
RATTLESNAKE CR	1305	6.50	2.2	G	DR1	G	S	DR1	G	S	DR1	G	S	DR1	G	S	DR1	G	S
RATTLESNAKE CR	1305			G	DR1	F	D	DR1	F	D	DR1	F	D	DR1	F	D	DR1	F	D
RATTLESNAKE CR	1305			F	DR1	F	S	DR1	F	S	DR1	F	S	DR1	F	S	DR1	F	S
SF SQUAW CREEK	0300	3.50	10.6	F	EA	F	S	DR1	F	S	DR1	F	S	DR1	F	S	DR1	F	S
SF SQUAW CREEK	0300			F	RR4	F	S	DR1	F	S	DR2	F	S	DR2	F	S	DR2	F	S
SHEEP CR	0400	1.50	4.5	?	DR4	?	?	DR4	?	?	DR4	?	?	DR4	?	?	DR4	?	?
SIMMONS GULCH CR	0300	2.00	6.0	?	RR4	?	?	DR1	?	?	DR2	?	?	DR2	?	?	DR2	?	?
SNAKE RIVER	UNA	0.30	10.8	G	UNA	G	S	UNA	G	S	UNA	G	S	UNA	G	S	UNA	G	S
SPRING CREEK	0500	3.00	9.1	?	FFR	?	?	FFR	?	?	FFR	?	?	FFR	?	?	FFR	?	?
SQUAW CREEK	0300	4.00	12.1	F	EA	F	S	DR1	F	S	DR1	F	S	DR1	F	S	DR1	F	S
SUCCOR CREEK	0500	7.00	21.1	F	DR1	P	D	DR1	P	D	DR1	P	D	DR1	P	D	DR1	P	D
SUCCOR CREEK	0500			F	SS	P	D	DR3	G	U	SS	P	D	SS	P	D	SS	P	D
SUCCOR CREEK	0500			F	SS	P	D	EA	P	D	EA	P	D	EX1	P	D	EX1	P	D
SUCCOR CREEK	0500			F	FFR	F	S	FFR	F	S	FFR	F	S	FFR	F	S	FFR	F	S
SUCCOR CREEK	0500			F	SS	P	D	SS	P	D	DR3	G	U	DR3	G	U	DR3	G	U
TWELVE MILE CR	1201	0.25	0.1	P	SF	P	D	SF	P	D	SF	P	D	SF	P	D	SF	P	D
TWIN SPRINGS CR	0400	1.50	4.5	?	DR4	?	?	DR4	?	?	DR4	?	?	DR4	?	?	DR4	?	?
WHITEHORSE CREEK	1201	11.00	60.0	G	EX	E	U	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U
WHITEHORSE CREEK	1201			F	DF	P	D	DF	P	D	DF	P	D	EX1	E	U	EX1	E	U
WILLOW CR	0500	4.00	12.1	?	EA	?	?	EA	?	?	SS	?	?	SS	?	?	SS	?	?
WILLOW CR	1204	13.25	30.4	G	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U
WILLOW CR	1204			G	RR2	G	U	RR2	G	U	DR2	G	U	EX1	E	U	EX1	E	U
WILLOW CR	1204			G	RR2	G	S	RR2	G	S	DR2	G	S	EX1	E	U	EX1	E	U
WILLOW CR	1204			F	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U
WILLOW CR	1204			F	RR2	F	U	RR2	F	U	DR2	F	U	EX1	E	U	EX1	E	U
WILLOW CR	1204			F	RR2	F	S	RR2	F	S	DR2	F	S	EX1	E	U	EX1	E	U
WILLOW CR	1204			P	EX1	G	U	EX1	G	U	EX1	G	U	EX1	G	U	EX1	G	U
WILLOW CR	1204			P	RR2	P	D	RR2	P	D	DR2	P	S	EX1	G	U	EX1	G	U
WILLOW CR	1204			P	RR2	P	S	RR2	P	S	DR2	P	D	EX1	G	U	EX1	G	U
WILLOW CR (TRIB)	1204	2.00	8.8	F	RR2	F	S	RR2	F	S	DR2	F	S	EX1	E	U	EX1	E	U
WILLOW CR (TRIB)	1204			P	RR2	P	D	RR2	P	D	DR2	P	D	EX1	G	U	EX1	G	U

Key:

Grazing System	Yearly Sequence of Use
W	Winter use every year
SS	Use during critical growth period every year
UNA	Inaccessible or Unallotted
EX1	Exclusion
EA	Early Spring Every Year

Grazing System	Yearly Sequence of Use
SF	EA/DF every year
DF	Use after seed ripe every year
DR1	1 year SS/1 year DF
DR2	1 year EA/1 year DF
DR3	1 year SS/1 year winter
DR4	1 year EA or SS/2 year DF
RR2	1 year SS/1 year rest
RR3	2 or 3 years SS/1 year rest
RR4	1 or 2 years early spring/1 year

Condition	Trend
E - Excellent	U - Up
G -Good	D -Down
F - Fair	S - Static
P - Poor	? - Unknown

[1] Located in Whitehorse Basin
[2] Tributary to Little Owyhee River
[3] Tributary to Indian Creek
[4] Tributary to Malheur River

Appendix G, Table G-2 Predicted Trend and Condition in Wildlife Habitat at Lakes and Reservoirs

Allot.	Lake or Reservoir	Shoreline Vegetation Acres	Exist. Cond.	Alt. 1 No Action Grazing System	Alt. 1 No Action Cond.	Alt. 1 No Action Trend	Alt. 2 Emphasize Livestock Grazing System	Alt. 2 Emphasize Livestock Cond.	Alt. 2 Emphasize Livestock Trend	Alt. 3 Preferred Alternative Grazing System	Alt. 3 Preferred Alternative Cond.	Alt. 3 Preferred Alternative Trend	Alt. 4 Emphasize Non Livestock System	Alt. 4 Emphasize Non Livestock Cond.	Alt. 4 Emphasize Non Livestock Trend	Alt. 5 Emphasize Wild Horses System	Alt. 5 Emphasize Wild Horses Cond.	Alt. 5 Emphasize Wild Horses Trend
UNA	Batch Lake	4.7	G	UNA	G	S	UNA	G	S	UNA	G	S	UNA	G	S	UNA	G	S
0300	Littlefield Res	0.6	P	DF	P	D	DF	P	D	EX1	G	U	EX1	G	U	EX1	G	U
0300	Squaw Creek Res	1.2	E	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U
0400	Kane Springs Res	0.6	E	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U
0400	Ryefield Res	1.2	F	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U
0400	Sagebrush Res	0.3	G	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U
0407	Vines Hill Res	0.9	F	EX1	E	U	DR2	F	S	EX1	E	U	EX1	E	U	EX1	E	U
0500	Bar Cross Basin Res	1.8	P	DR1	P	D	DR2	P	D	EX1	G	U	EX1	G	U	EX1	G	U
0500	Dog Creek Res	0.3	G	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U
0500	Hang Up Res	0.6	P	DR1	P	D	DR1	P	D	EX1	G	U	EX1	G	U	EX1	G	U
0500	Saddle Butte Res	0.9	P	DR1	P	D	DR1	P	D	DR1	P	D	DR1	P	D	DR1	P	D
0500	Schnable Creek Res	0.3	P	DR1	P	D	DR1	P	D	EX1	G	U	EX1	G	U	EX1	G	U
0701	Bone Creek Res	0.7	P	EX1	G	U	EX1	G	U	EX1	G	U	EX1	G	U	EX1	G	U
0801	Crooked Creek Sp Res	0.8	E	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U
0902	Bogus Lake	1.6	F	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U
0905	Cow Lake	16.8	P	DF	P	D	DF	P	D	DF	P	D	DF	P	D	DF	P	D
0905	Lower Cow Lake	19.1	P	DF	P	D	DF	P	D	DF	P	D	DF	P	D	DF	P	D
1001	Upper Rock Creek Res	7.7	F	EX1	G	U	EX1	G	U	EX1	G	U	EX1	G	U	EX1	G	U
1002	Antelope Res	60.6	F	EX1	G	U	EX1	G	U	EX1	G	U	EX1	G	U	EX1	G	U
1002	Cantor Corral Res	0.6	E	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U
1002	Gluch Pit Res	0.6	G	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U
1002	Hicks Canyon Res	0.9	P	EX1	G	U	EX1	G	U	EX1	G	U	EX1	G	U	EX1	G	U
1004	Castro Pit Res	0.6	G	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U
1101	Owyhee Springs Res	0.6	G	EX1	E	U	EX1	E	S	EX1	E	S	EX1	E	S	EX1	E	U
1201	Blue Mtn #4 Res	0.8	F	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U
1201	Dawson Res	0.6	F	EX1	G	U	EX1	G	U	EX1	G	U	EX1	G	U	EX1	G	U
1201	School House Res	0.6	F	EX1	G	U	EX1	G	U	EX1	G	U	EX1	G	U	EX1	G	U
1302	Echave Res	0.6	P	DR1	P	D	DR1	P	D	DR1	P	D	DR1	P	D	DR1	P	D
1305	Little Snake Res	1.2	P	DR1	P	D	DR1	P	D	DR1	P	D	DR1	P	D	DR1	P	D
1305	Rattlesnake #2 Res	0.9	F	EX1	G	U	EX1	G	U	EX1	G	U	EX1	G	U	EX1	G	U
1307	Chico Res	1.1	P	DR1	P	D	DR1	P	D	DF	P	D	EX1	F	U	EX1	F	U
1307	Jeffs Res	1.4	P	DR1	P	D	DR1	P	D	EX1	G	U	EX1	G	U	EX1	G	U
1307	Steer Canyon Res	0.6	P	DR1	P	S	DR1	P	S	DF	P	S	EX1	F	U	EX1	F	U
1401	Junction Res	0.6	P	SS	P	S	SS	P	S	EX1	G	U	EX1	G	U	EX1	G	U
	Total	**138.5**																

Key:

Grazing System	Yearly Sequence of Use
W	Winter use every year
SS	Use during critical growth period every year
UNA	Inaccessible or Unallotted
EX1	Exclusion
EA	Early Spring Every Year

Grazing System	Yearly Sequence of Use
SF	EA/DF every year
DF	Use after seed ripe every year
DR1	1 year SS/1 year DF
DR2	1 year EA/1 year DF
DR3	1 year SS/1 year winter
DR4	1 year EA or SS/2 year DF
RR2	1 year SS/1 year rest
RR3	2 or 3 years SS/1 year rest
RR4	1 or 2 years early spring/1 year

Condition	Trend
E - Excellent	U - Up
G - Good	D - Down
F - Fair	S - Static
P - Poor	? - Unknown

Appendix G, Table G-3 Predicted Long-Term Condition and Trend in Fish Habitat

Fishery Streams	Allot	Miles	Exist. Cond.	Alt. 1 No Action Grazing System	Alt. 1 No Action Cond.	Alt. 1 No Action Trend	Alt. 2 Emphasize Livestock Grazing System	Alt. 2 Emphasize Livestock Cond.	Alt. 2 Emphasize Livestock Trend	Alt. 3 Preferred Alternative Grazing System	Alt. 3 Preferred Alternative Cond.	Alt. 3 Preferred Alternative Trend	Alt. 4 Emphasize Non Livestock Grazing System	Alt. 4 Emphasize Non Livestock Cond.	Alt. 4 Emphasize Non Livestock Trend	Alt. 5 Emphasize Wild Horses Grazing System	Alt. 5 Emphasize Wild Horses Cond.	Alt. 5 Emphasize Wild Horses Trend
Antelope Cr[1]	1201	2.00	G	DF	G	S	DF	G	S	DF	G	S	EX1	G	S	EX1	G	S
Antelope Creek[2]	1306	7.00	F	RR4	F	S	RR4	F	S	RR4	F	S	RR4	F	S	RR4	F	S
Carter Creek	0500	2.75	E	DR1	E	S	RR4	E	S	EA	E	S	RR4	E	S	RR4	E	S
Carter Creek	0500		G	DR1	G	S	RR4	G	S	RR4	G	S	RR4	G	S	RR4	G	S
Carter Creek	0500		F	DR1	F	S	RR4	F	S	RR4	F	S	RR4	F	S	RR4	F	S
Carter Creek	0500		P	SS	P	D	EA	F	U	RR4	F	U	EA	F	U	EA	F	U
Cottonwood Cr (Ind)[3]	1202	1.75	G	EA	E	U	EA	E	U	EA	E	U	EX1	E	U	EX1	E	U
Cottonwood Cr (Ind)[3]	1202		F	EA	G	U	EA	G	U	EA	G	U	EX1	E	U	EX1	E	U
Cottonwood Creek[4]	0300	10.50	F	DR1	F	S	DR1	P	D	DR2	F	S	DR2	F	S	DR2	F	S
Cottonwood Creek[4]	0300		F	RR2	F	S	DR1	P	D	DR2	F	S	EX1	E	U	EX1	E	U
Cottonwood Creek[4]	0300		P	RR2	P	S	DR1	P	S	DR2	P	S	EX1	P	S	EX1	P	S
Cottonwood Creek[4]	0300		P	RR2	P	S	DR1	P	D	DR2	P	S	EX1	G	U	EX1	G	U
Crooked Creek	0801	3.00	G	EA	G	S	EA	G	S	EA	G	S	EA	G	S	EA	G	S
Crooked Creek	0801		G	SS	G	S	SS	G	S	EA	G	S	SS	G	S	SS	G	S
Crooked Creek	0801		P	EA	P	S	EA	P	S	EA	P	S	EA	P	S	EA	P	S
Doolittle Creek	1201	6.00	G	EA	F	D	DF	F	D	DF	F	D	EX1	G	S	EX1	G	S
Doolittle Creek	1201		F	DF	P	D	DF	P	D	DF	P	D	EX1	E	U	EX1	E	U
Dry Creek	0400	2.50	F	DR4	F	S	DR2	F	S	DR2	F	S	EX1	G	U	EX1	G	U
Dry Creek	0400		F	DR4	F	S	DR2	F	S	DR2	F	S	EX1	F	S	EX1	F	S

				Alt. 1 No Action			Alt. 2 Emphasize Livestock			Alt. 3 Preferred Alternative			Alt. 4 Emphasize Non Livestock			Alt. 5 Emphasize Wild Horses		
Fishery Streams	Allot	Miles	Exist. Cond.	Grazing System	Cond.	Trend	Grazing System	Cond.	Trend	Grazing System	Cond.	Trend	Grazing System	Cond.	Trend	Grazing System	Cond.	Trend
Dry Creek	0400		F	DR4	P	S	DR2	F	D	DR2	F	D	EX1	E	U	EX1	E	U
Fifteen Mile Creek	1201	3.00	G	DF	F	D	DF	F	D	DF	F	D	EX1	G	S	EX1	G	S
Indian Creek	1202	7.25	G	EA	G	S	EA	G	S	EA	G	S	EX1	G	S	EX1	G	S
Indian Creek	1202		F	EA	G	U	EA	G	U	EA	G	U	EX1	E	U	EX1	E	U
Indian Creek	1202		F	EA	F	S	EA	F	S	EA	F	S	EX1	G	U	EX1	G	U
Indian Creek	1202		P	EA	F	U	EA	F	U	EA	F	U	EX1	G	U	EX1	G	U
Indian Creek	1202		P	EA	P	S	EA	P	S	EA	P	S	EX1	F	U	EX1	F	U
Jordan Creek	UNA	2.00	P	UNA	P	S	UNA	P	S	UNA	P	S	UNA	P	S	UNA	P	S
L Whitehorse Cr	1204	8.65	G	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U
L Whitehorse Cr	1204		G	RR2	G	S	RR2	G	S	DR2	G	S	EX1	G	S	EX1	G	S
L Whitehorse Cr	1204		F	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U
L Whitehorse Cr	1204		F	EX1	G	U	EX1	G	U	EX1	G	U	EX1	G	U	EX1	G	U
L Whitehorse Cr	1204		F	RR2	F	U	RR2	F	U	DR2	F	U	EX1	E	U	EX1	E	U
L Whitehorse Cr	1204		F	RR2	F	U	RR2	F	U	DR2	F	U	EX1	G	U	EX1	G	U
L Whitehorse Cr	1204		F	RR2	F	S	RR2	F	S	DR2	F	S	EX1	F	S	EX1	F	S
L Whitehorse Cr	1204		P	RR2	P	D	RR2	P	D	DR2	P	D	EX1	G	U	EX1	G	U
L Whitehorse Cr	1204		P	RR2	P	D	RR2	P	D	DR2	P	D	EX1	F	U	EX1	F	U
Line Canyon Cr	1203	2.00	F	RR3	P	D	RR3	P	D	SS	P	D	EX1	E	U	EX1	E	U
Line Canyon Cr	1203		F	RR3	P	D	RR3	P	D	SS	P	D	EX1	G	U	EX1	G	U
Little Owyhee River	1307	28.75	G	DR1	F	D	DR1	F	D	SS	F	D	EX1	E	U	EX1	E	U
Little Owyhee River	1307		F	DR1	F	S	DR1	F	S	SS	F	S	EX1	F	S	EX1	F	S
Little Owyhee River	1307		F	DR1	P	D	DR1	P	D	SS	P	D	EX1	E	U	EX1	E	U
Little Owyhee River	1307		F	DR1	F	S	DR1	F	S	SS	P	D	DR1	F	S	DR1	F	S
Little Owyhee River	1307		F	EX1	F	S	EX1	F	S	DR1	F	S	EX1	F	S	EX1	F	S
Little Owyhee River	1307		P	DR1	P	S	DR1	P	S	SS	P	S	EX1	P	S	EX1	P	S
Little Owyhee River	1307		P	DR1	P	D	DR1	P	D	SS	P	D	EX1	G	U	EX1	G	U
Malheur River	UNA	2.50	G	UNA	G	S	UNA	G	S	UNA	G	S	UNA	G	S	UNA	G	S
Malheur River	0300	0.30	G	RR2	G	S	DR1	F	S	DR2	G	S	DR2	G	S	EX1	G	S
Malheur River	0304	5.40	G	DF	F	S	DF	F	S	FFR	G	S	DR2	G	S	DR2	G	S
Malheur River	0304		G	DR1	F	D	DR1	F	D	DR1	G	S	DR1	G	S	EX1	E	U
Malheur River	0304		G	EA	G	S	DR1	F	D	DR2	G	S	DR2	G	S	DR2	G	S
Malheur River	0304		G	RR2	G	S	DR1	F	D	DR2	G	S	DR2	G	S	DR2	G	S
Malheur River	0410	1.20	G	FFR	G	S	FFR	G	S	FFR	G	S	FFR	G	S	FFR	G	S
McDermitt Cr	1202	3.00	F	EA	G	U	EA	G	U	EA	G	U	EX1	E	U	EX1	E	U
McDermitt Cr	1203	8.50	G	RR3	F	D	RR3	F	D	EA	P	D	EX1	E	U	EX1	E	U
McDermitt Cr	1203		F	RR3	P	D	RR3	P	D	SS	P	D	EX1	E	U	EX1	E	U
McDermitt Cr	1203		F	RR3	P	D	RR3	P	D	SS	P	D	EX1	G	U	EX1	G	U
McDermitt Cr	1203		F	RR3	P	D	RR3	P	D	SS	P	D	EX1	F	S	EX1	F	S
NF Squaw Creek	0300	3.25	G	RR4	G	S	DR1	G	S	DR2	G	S	DR2	G	S	DR2	G	S
NF Squaw Creek	0300		F	RR4	F	S	DR1	F	S	DR2	F	S	DR2	F	S	DR2	F	S
NF Squaw Creek	0300		P	RR4	P	S	DR1	P	S	DR2	P	S	DR2	P	S	DR2	P	S
Oregon Can Cr	1201	10.75	G	DF	F	D	DF	F	D	DF	F	D	EX1	E	U	EX1	E	U
Oregon Can Cr	1201			DF	F	D	DF	F	D	DF	F	D	EX1	G	S	EX1	G	S
Oregon Can Cr	1201		F	DF	P	D	DF	P	D	DF	P	D	EX1	E	U	EX1	E	U
Oregon Can Cr	1201		P	DF	P	D	DF	P	D	DF	P	D	EX1	G	U	EX1	G	U
Oregon Canyon Cr	1201	0.75	G	DF	F	D	DF	F	D	DF	F	D	EX1	E	U	EX1	E	U
Owyhee River	UNA	0.20	G	UNA	G	S	UNA	G	S	UNA	G	S	UNA	G	S	UNA	G	S
Owyhee River	0303	1.50	F	RR2	P	D	DR1	P	D	DR2	F	S	DR1	P	D	DR1	P	D
Owyhee River	0400	5.80	G	DR1	F	D	DR1	F	D	EX1	G	S	EX1	G	S	EX1	G	S
Owyhee River	0400		F	DR2	F	S	DR2	F	S	DR2	F	S	DR2	F	S	DR2	F	S
Owyhee River	0408	1.30	G	EA	F	D	SS	P	D	SS	P	D	SS	P	D	SS	P	D
Owyhee River	0502	1.00	G	EX1	G	S	EX1	G	S	EX1	G	S	EX1	G	S	EX1	G	S
Owyhee River	0506	0.50	F	SS	P	D	SS	P	D	SS	P	D	SS	P	D	SS	P	D
Owyhee (Rome-RSRV)	UNA	41.00	F	UNA	F	S	UNA	F	S	UNA	F	S	UNA	F	S	UNA	F	S
Owyhee (3 Fks-Rome)	UNA	35.00	F	UNA	F	S	UNA	F	S	UNA	F	S	UNA	F	S	UNA	F	S
Pole Creek	1307	4.75	P	DR1	P	S	DR1	P	S	SS	P	S	EX1	P	S	EX1	P	S
Rattlesnake Cr	1305	3.25	F	DR1	F	S	DR1	F	S	DR1	F	S	DR1	F	S	DR1	F	S
Rattlesnake Cr	1305		F	DR1	P	D	DR1	P	D	DR1	P	D	DR1	P	D	DR1	P	D
SF Squaw Creek	0300	2.50	F	RR4	F	S	DR1	F	S	DR2	F	S	DR2	F	S	DR2	F	S
Snake River	UNA	0.30	F	NA	F	S	NA	F	S	UNA	F	S	UNA	F	S	UNA	F	S
Succor Creek	0500	7.00	F	DR1	P	D	DR1	P	D	DR1	P	D	DR1	P	D	DR1	P	D
Succor Creek	0500			SS	P	D	DR3	G	U	DR3	G	U	SS	G	U	SS	P	D
Succor Creek	0500			SS	P	D	EA	G	U	SS	G	U	EX1	E	U	EX1	E	U
Succor Creek	0500			FFR	F	U	FFR	F	U	FFR	F	U	FFR	F	U	FFR	F	U
Succor Creek	0500			SS	P	D	SS	P	D	DR3	G	U	DR3	G	U	DR3	G	U
Whitehorse Creek	1201	11.00	F	DF	P	D	DF	P	D	DF	P	D	EX1	E	U	EX1	E	U
Whitehorse Creek	1201			EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U
Willow Cr	1204	13.25	G	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U
Willow Cr	1204		F	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U	EX1	E	U
Willow Cr	1204		F	EX1	G	U	EX1	G	U	EX1	G	U	EX1	G	U	EX1	G	U
Willow Cr	1204		F	RR2	F	S	RR2	F	S	DR2	F	S	EX1	E	U	EX1	E	U
Willow Cr	1204		F	RR2	F	S	RR2	F	S	DR2	F	S	EX1	G	U	EX1	G	U
Willow Cr	1204		P	EX1	G	U	EX1	G	U	EX1	G	U	EX1	G	U	EX1	G	U
Willow Cr	1204		P	RR2	P	D	RR2	P	D	DR2	P	D	EX1	G	U	EX1	G	U
Willow Cr (Trib)	1204	2.00	F	RR2	F	S	RR2	F	S	DR2	F	S	EX1	E	U	EX1	E	U
Willow Cr (Trib)	1204		F	RR2	F	S	RR2	F	S	DR2	F	S	EX1	G	U	EX1	G	U

Key:

Grazing System	Yearly Sequence of Use
W	Winter use every year
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EX1	Exclusion
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Grazing System	Yearly Sequence of Use
SF	EA/DF every year
DF	Use after seed ripe every year
DR1	1 year SS/1 year DF
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DR3	1 year SS/1 year winter
DR4	1 year EA or SS/2 year DF
RR2	1 year SS/1 year rest
RR3	2 or 3 years SS/1 year rest
RR4	1 or 2 years early spring/1 year

Condition	Trend
E - Excellent	U - Up
G - Good	D - Down
F - Fair	S - Static
P - Poor	? - Unknown

[1] Located in Whitehorse Basin
[2] Tributary to Little Owyhee River
[3] Tributary to Indian Creek
[4] Tributary to Malheur River

Appendix H

Estimates of Gross Sales, Personal Income, and Employment

These measures of the economic effects of changes in program-related activities were estimated by use of an input-output model (IMPLAN) developed by the U.S. Forest Service, with which BLM developed the model representing the economy of Malheur County.

An interindustry (or input-output) model is a summary of all the transactions occurring in an area during a 1-year period, showing for each industry or economic sector the amount of its purchases from every other industry (inputs) and the amount of its sales to every other industry (outputs). Purchases of goods to be sold by trade industries are treated as direct sales by the producing industry, and trade industry transactions are limited to their gross margin accounts or the part of their transactions over and above the cost of goods sold. This information represents the interindustry relationships in the area and permits the estimation of how a change in one industry would affect other industries and the economy as a whole.

When a specific change occurs in the economy, such as an increase in cattle sales due to increased forage availability, the cattle industry purchases more from its suppliers, ranch families spend more, and so on. Recipients of these purchases increase their purchases. The end result of this process is increased activity throughout the economy. The effects on the industry in which the initial change occurs (e.g., the cattle industry) are termed the direct effects of the change. The direct effects plus the effects on other industries in the local economy make up the total local effects. Estimates of the effects per unit measure are shown in Table H-1 for livestock production and range improvements, the two activities significantly affected by the potential program actions.

Table H-1 Economic Effects per Unit Measure

Item	Livestock Production	Range Improvements
Unit of Measure	1,000 AUMs	$10,000
Initial gross sales[1]	$24330	$10,000
Direct effects:[2]		
Personal income	$3,710	$4,479
Employment (jobs)	.11209[3]	.22684
Total local effects:[4]		
Gross sales	$54,100	$14,183
Personal income	$16,080	$ 6,853
Employment	.48594[5]	.36918

[1] Total sales (or expenditures) per unit. Livestock sales per AUM derived from ranch budget survey for BLM permittees in Malheur County. Refer to Table H-2 for source of $24,330.
[1] Effects within the livestock industry, or within the construction industry, respectively.
[3] Jobs per 1,000 AUMs in livestock industry.
[4] Total effects in Malheur County including direct, indirect and induced effects.
[5] Jobs per 1,000 AUMs in county.

Table H-2 Personal Income Generated per AUM for Beef Production, Malheur County, 1976-1981

(Data in Thousands Except as Otherwise Indicated)

Item	1976	1977	1978	1979	1980	1981	Average
1. Direct personal income in agriculture[1]	$27,947	15,885	24,219	33,454	31,428	—	
2. Value of agricultural commodities sold[2]	85,450	83,129	104,769	121,846	137,888	146,268	
3. Value of cattle and calves sold[3]	23,110	27,252	36,841	54,680	45,034	47,728	
4. Direct personal income in agriculture attributable to beef production[4]	7,558	5,207	8,156	15,013	10,264	—	
5. Number of cattle and calves[3]	195	205	200	200	210	225	
6. Number of beef cows[3]	81	76	75	76	83	91	
7. Number of dairy cows[3]	7.5	7.7	7.7	7.5	7.5	7.9	
8. Total AUMs for beef cattle[5, 9]	1,701	1,732	1,696	1,701	1,803	1,943	1,762
9. Value of cattle and calves sold per AUM for beef cattle (in dollars) (item 3 ÷ item 8)							
—in current dollars	13.59	15.72	21.72	32.15	24.98	24.56	22.12
—in 1981 dollars[6]	19.43	22.48	24.54	30.54	24.48	24.56	24.33
10. Direct personal income per AUM (in dollars) (item 4 ÷ item 8)							
—in current dollars	4.44	3.01	4.81	8.83	5.69	—	5.36
—in 1981 dollars[7]	7.33	4.67	6.93	11.39	6.43	—	7.35
11. Direct, indirect, induced personal income per AUM.[8]							
12. Direct, indirect, induced employment per AUM (jobs)[8]							

[1] Consists of all wages and other labor income and proprietors income in the agricultural industry. U.S. Dept. of Commerce Bureau of Economic Analysis, Regional Economic Information System, Table 5, April 1982.
[2] Consists of all sales of crops, livestock and livestock products. Oregon State University, Extension Service, Commodity Data Sheets, 1982.
[3] Oregon State University, Extension Service, Commodity Data Sheets, 1982.
[4] Derived by multiplying the ratio of cattle and calf sales to total sales (item 3 ÷ item 2) by total income (item 1).
[5] Estimated as 12 times the number of beef and dairy cows plus six times the number of beef calves: 12 (item 6 + item 7) + 6 × .50 (item 5 – item 6 – item 7). Adjusted by the producer price index (farm products - livestock): 1976 - 1.43; 1977 - 1.43; 1978 - 1.13; 1979- .95; 1980 - .98; 1981 - 1.00.
[7] Adjusted by the consumer price index (all items): 1976 - 1.65; 1977 - 1.55; 1978 - 1.44; 1979 - 1.29; 1980 - 1.13; 1981 - 1.00.
[8] Derived from coefficients obtained from IMPLAN. (U.S. Forest Service Input-Output Model).
[9] Number of beef cattle AUMs on BLM-managed lands is 428,927; This is 24 percent of Total County Beef Cattle AUMs.

Glossary

Acre-foot - The volume of water that will cover 1 acre to a depth of 1 foot.

Active Preference - That portion of the total grazing preference for which grazing use may be authorized.

Active Use - The total number of AUMs authorized for grazing by livestock. Also called paid use.

Actual Use - See active use.

Allotment - An area of land where one or more operators graze their livestock. Generally consists of public land but may include parcels of private or state lands. The number of livestock and season of use are stipulated for each allotment. An allotment may consist of one or several pastures.

Allotment Management Plan (AMP) - An intensive livestock grazing management plan dealing with a specific unit of rangeland, based on multiple use resource management objectives. The AMP considers livestock grazing in relation to the renewable resources—soil, water, vegetation and wildlife. An AMP establishes the season of use, the number of livestock to be permitted on the range and the range improvements needed.

Alluvial - Pertaining to material that is transported and deposited by running water.

Animal Unit Month (AUM) - The amount of forage required to sustain one cow with one calf, or their equivalent for one month.

Archeologic Resources - All physical evidence of past human activity, other than historical documents, which can be used to reconstruct lifeways and cultural history of past peoples. These include sites, artifacts, environmental data and all other relevant information.

Area of Critical Environmental Concern (ACEC) - An area within the public lands where special management attention is required (when such areas are developed or used, or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards (FLPMA Sec. 103(a)).

Browse - That part of leaf and twig growth of shrubs, woody vines and trees available for animal consumption.

Carrying Capacity - The maximum number of animals an area can sustain without inducing damage to vegetation or related resourses, such as soil and water.

Characteristic Landscape - The visual characteristics of existing landscape features (including man-made) within a physiographic province. The term does not necessarily mean naturalistic character but rather could refer to landscapes which exhibit both physiographic and land use similarities.

Contrast Rating - A method of determining the extent of visual impact for an existing or proposed activity that will modify any landscape feature.

Critical Growing Period - The portion of a plant's growing season, generally between flowering and seed dissemination, when carbohydrate reserves are being stored and seeds produced. Grazing after the start of this date is detrimental due to inadequate moisture for supporting further plant growth later in the season.

Crucial Habitat - A relatively small part of an animal's range or habitat which is essential for the animal's existence because it contains special qualities or features (e.g., water holes, winter food and cover, nesting trees, strutting ground, upland meadow).

Cultural Resources - A term that includes resources of paleontologic, archeologic or historic significance which are fragile, limited, and non-renewable portions of the human environment.

Deferred Grazing - As a grazing system, grazing occurs after seed ripe every year. No grazing occurs during the critical growth period.

Deferred Rotation - As a grazing system, combines early spring, spring/summer and deferred grazing in alternate years.

Direct Income - Earnings from production of workers in a specified industry. See Indirect Income.

Distance Zones - The area that can be seen as foreground, middleground, or background.

Early Spring Grazing - Grazing occurs for one to two months prior to the beginning of the critical growth period. Grazing terminates when sufficient soil moisture is present to allow complete regrowth of key perennial species.

Erosion - Detachment and movement of soil or rock fragments by water, wind, ice or gravity.

Exclusion - No authorized livestock grazing.

Exclosure - An area fenced to exclude livestock and wild horses.

Fecal Coliform - A group of bacteria used as an indicator of sanitary quality in water.

Fenced Federal Range - Fenced Federal Range consists of tracts of public land fenced into pastures, usually with large amounts of private land. Grazing use is authorized for the grazing capacity of the public lands only. Livestock numbers, kind of animals and period of use are most often not restricted. However, actual grazing use usually occurs after the growing season since the use is in conjunction with private land (often crop lands).

Forage Condition - As it is used in this document, it is a rating given to seedings only and expresses the amount of crested wheatgrass present.

Forage Production - The amount of forage that is produced within a designated period of time on a given area (expressed in AUMs or pounds per acre). This is the proportion of total annual vegetation production which is consumable by livestock on a sustainable basis.

Forb - Any non grasslike herbaceous plant.

Grazing Capacity - The amount of forage (expressed in Animal Unit Months) which is consumable by livestock on a sustainable basis.

Grazing Preference - See Total Preference.

Greenup - Start of plant growth in spring or fall.

Groundwater - Subsurface water that is in the zone of saturation.

Gully - A channel, usually with steep sides, through which water commonly flows during and immediately after rains or snow melt.

Habitat Diversity - The relative degree or abundance of plant species, communities, habitats or habitat features (e.g. topography, canopy layers) per unit of area.

Headcutting - An erosional process characterized by the progresive up-slope of an initial furrow or rill, leading to the formation of a gully.

Herb - A seed-producing plant that does not develop persistent woody tissue.

Herbage - Herbaceous plant growth, especially fleshy, edible plants.

Herbaceous Plants - Plants having little or no woody tissue.

Indirect Income - Earnings or personal income to workers outside a specified industry generated by production in that industry. For example, personal income to those outside the livestock industry generated by the business and personal expenditures of the livestock industry as well as successive rounds of expenditures which may result in the community.

Infiltration - The gradual downward flow of water from the surface through soil to groundwater.

Intermittent Stream - A stream or portion of a stream that flows only in direct response to precipitation. It receives little or no water from springs and an inconsistant supply from melting snow or other sources. It is dry for a large part of the year, ordinarily more than 3 months.

Key Species - A plant that is a relatively or potentially abundant species. It should be able to endure moderately close grazing and serve as an indicator of changes occurring in the vegetational complex. The key species is an important vegetative component that, if overused, will have a significant effect on watershed conditions, grazing capacity, or other resource values. More than one key species may be selected on an allotment. For example, a species may be important for watershed protection and a different species may be important for livestock forage or wildlife forage, etc.

Limiting Factor - A component of the environment which regulates animal populations (e.g., food, water, cover) or plant growth (water availability, stream channel scour, poor soils).

Litter - A surface layer of loose, organic debris, consisting of freshly fallen or slightly decomposed organic materials.

Livestock Forage Production - See Forage Production.

Long Term - Fifteen years after implementation of the decision.

Management Framework Plan (MFP) - Land use plan for public lands which provides a set of goals, objectives and constraints for a specific planning area to guide the development of detailed plans for the management of each resource.

Minimum Viable Herd - In wild horse herd areas, the minimum viable herd size is 75 animals unless unrelated brood stock are introduced into the herd. In the EIS area, the minimum viable number is based on estimated ratios of breeding males to breeding females in the nine herd areas that had populations of horses in 1982.

National Register of Historic Places - Established by the Historic Preservation Act of 1966, the Register is a listing maintained by the National Park Service of architectural, historical, archeologic and cultural sites of local, state or national significance.

Paleontology - A science dealing with the life of past geological periods as known from fossil remains.

Pasture - A fenced subdivision of a grazing allotment capable of being grazed by livestock independently from the rest of the allotment.

Perennial Stream - A stream or portion of a stream that flows year long. It receives water from precipitation, springs, melting snow and/or groundwater.

Permits - Under Section 3 of the Taylor Grazing Act, a permit is a document authorizing use of the public lands within grazing districts for the purpose of grazing livestock.

pH - The negative logarithm of the hydrogen ion concentration. A pH below 7.0 indicates an acid, and a pH above 7.0 indicates an alkaline substance. A pH of 7.0 is considered neutral.

Planning Area Analysis (PAA) - A planning document which analyzes the relationship of social and economic data to the physical and biological data presented in a Unit Resource Analysis (URA).

Plant Composition - The proportions of various plant species annual production in relation to the total annual production of all plants on a given area.

Plant Maturity - That point in the growing season when an individual plant species has set seed, stored food reserves and gone into the dormant stage. This time is different for various species.

Plant Vigor - See Vigor

Playa - A shallow, normally intermittent lake in an arid or semi-arid region which has no outlet and water evaporates during the drier months to leave a dry lake bed.

Preference - See Total Preference and Active Preference.

Proprietor - One who owns and operates their own business; one engaged in economic activity on their own account and not as an employee. Farm or ranch proprietor need not own the land used.

Public Land - Formal name for lands administered by the Bureau of Land Management.

Range Condition - An expression of the status of a plant community based on kinds, proportions, and amounts of species as they resemble the potential plant community for a given range site.

Range Improvement - A structure, action or practice that increases forage production, improves watershed and range condition or facilitates management of the range or the livestock grazing on it.

Range Trend - A measure of the direction of change in range condition.

Research Natural Areas - Areas established and maintained for research and education. The general public may be excluded or restricted where necessary to protect studies or preserve research natural areas. Lands may have: (1) Typical or unusual faunistic or floristic types, associations, or other biotic phenomena, or (2) Characteristic or outstanding geologic, pedologic or aquatic features or processes.

Residual Ground Cover - That portion of the total vegetative ground cover (including litter) that remains after the livestock grazing season.

Rest - As used in this statement, refers to deferment of grazing on a range area (pasture) to allow plants to replenish their food reserves.

Rest Rotation - As a grazing system, rest rotation alternates one or more years of rest with other grazing treatments.

Riparian - Related to wet areas associated with streams, lakes, reservoirs, and springs.

Runoff - That portion of the precipitation on a drainage area that is discharged from the area in stream channels.

Sediment Yield - The quantity of sediment transported through a stream cross-section in a given time.

Shoreline Riparian Vegetation - Vegetation associated with the perimeter of lakes and resevoirs.

Short Term - Up to one year after implementation of the decision.

Spring/Summer Grazing - As a grazing system, allows grazing during the critical growth period every year.

State Historic Preservation Office (SHPO) - The official within each State, authorized by the State at the request of the Secretary of the Interior, to act as a liaison for purposes of implementing the National Historic Preservation Act of 1966.

Suspended Preference - The number of animal unit months temporarily removed from a permittee's active preference.

Thermal Cover - Vegetation or topography that prevents radiational heat loss, reduces wind chill during cold weather, and intercepts solar radiation during warm weather.

Total Preference - The active preference and suspended preference together make up the total grazing preference.

Unallotted Lands - Public lands which currently have no authorized livestock grazing.

Unavailable - As a grazing system, areas within grazing allotments which are not used by livestock due to a lack of water, livestock management fences, topography or low productivity.

Unit Resource Analysis (URA) - A BLM planning document which contains a comprehensive inventory and analysis of the physical resources and an analysis of their potential for development, within a specified geographic area.

Upland - All rangelands other than riparian areas or wetlands.

Upland meadow - An area characterized by dense herbaceous vegetation due to a high water table.

Utilization - The proportion of the current year's forage production that is consumed or destroyed by grazing animals. This may refer either to a single species or to the whole vegetative complex. Utilization is expressed as a percent by weight, height or numbers within reach of the grazing animals. Four levels of utilization are used in this document: light (21-40 percent), moderate (41-60 percent), heavy (61-80 percent), and severe (81-100 percent).

Vegetation Allocation - In reference to forage, the distribution of the available livestock forage production to the various resource needs such as wildlife, livestock, wild horses and nonconsumptive use.

Vegetation Manipulation - As used in this statement, refers to seeding and brush control range improvements.

Vegetation Type - A grouping of plant communities which have similar dominant plant species.

Vegetative Ground Cover - The percent of the land surface covered by all living and undecomposed remnants of vegetation within 20 feet of the ground.

Vigor - The relative well-being and health of a plant as reflected by its ability to manufacture sufficient food for growth, maintenance and reproduction.

Visual Contrast - The effect of a striking difference in the form, line, color or texture of the landscape features in the area being viewed.

Visual Resource - The land, water, vegetation, animals and other features that are visible on all public lands.

Visitor-Day - Twelve visitor-hours, which may be aggregated continuously, intermittently or simultaneously by one or more persons. Visitor-days may occur either as recreation visitor-days or as non-recreation visitor-days.

Visual Resource Management (VRM) Classes - The degree of alteration that is acceptable within the characteristic landscape. It is based upon the physical and sociological characteristics of any given homogenous area.

Water Gap - Small areas which allow livestock access to streams.

Water Yield - The amount of water discharged in streams.

Wilderness Study Area - A roadless area or island that has been inventoried and found to have wilderness characteristics as described in Section 603 of the Federal Land Policy and Management Act of 1976 and Section 2(c) of the Wilderness Act of 1964.

Work Year - One person working the full-time equivalent of one year.

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